Have you nominated any friends for membership in the Association?

If not—why?

The more members it has the greater will be the Association's influence in forest conservation.

Nominate at least one person for membership. It requires but a little thought, a little effort—and every little helps.

THE ROYAL SUPERIOR INSTITUTE OF FORESTRY, VALLOMBROSA, ITALY.

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THE NEW ITALIAN FOREST POLICY

By DR. GUIDO A. R. BORGHESANI

IN his recent treatise on public forest economy, Prof. Albert, of the Forest Academy of Eberswald, gives the following summary of the principles underlying the German forest policy: "to stimulate the consciousness, in every branch of the national economy, that the real interest of agriculture is synonymous with that of sylviculture."

Now the state of affairs has been just the reverse of this up to the present in Italy, as in every country whose economic development is backward, such as Spain, Greece, etc. It is customary in the agricultural-pastoral class to consider the forest as antagonistic to pasturage and to farming; and when the Government intervened for the purpose of putting a stop to the deleterious effects of this ignorant attitude, it only aggravated this sterile antagonism by imposing purely negative restrictions.

And yet for sylviculture also—as the present Minister of Agriculture in Italy, the Hon. Nitti, justly remarked for agriculture—the problem is a problem of production. Like all problems of production, however, it is resolved at bottom into a technical and organization problem. This, in fact, is the weak point of Italian sylviculture, the main source of all the evils that afflict it and indirectly disturb the whole of the national economy: the real reason of its apparent sterility. We possess merely a modern forest technique which corresponds economically to our conditions and needs; we have not an active, sound and normal forest production, on the basis of a provident and sustained preservation.

It is natural, therefore, that in the face of a form of production which is inferior and disorganized, other productive forms which are better organized and, although less modern, are steadier and more consistent, should prevail, albeit in a somewhat parasitic manner. That is to say, it is natural that the Italian mountaineer (and two-thirds of Italy are mountains), who does not know how to estimate and utilize the intrinsic value of the forest,—the maximum volume growth—should prefer to break it up for the purpose of cultivating it, however badly, as long as the erosion of the soil allows him; or that he should send his sheep and goats to the forest to undermine its

existence, when he does not burn it in order to gain a poor and temporary pasture ground; because the only thing he knows is how to grow a little corn or obtain a small quantity of wool or of milk.

The problem, therfore, is not so much a matter of wasting time in the consideration of more or less useless juridical questions, as to whether or no it is the case to deal with the forest from the point of view of its secondary effects, but rather to study a way of placing forest production on a sure technical basis, because where a forest is naturally suitable, it will also be economically satisfactory.

ITALY'S ENORMOUS IMPORTATION

Economic bases are not lacking when there is the desire to utilize them. Timber is the product which has most increased in price on the international market, having increased by 300% from 1860 up to the present day. At the present time, Italy imports $45,000,000 worth of forest products every year, that is to say, one-fourteenth of her total imports. Our most important importer, after Austria, is the United States, for a sum of about $5,800,000. The excedent of the importation upon the exportation of forest products in Italy is $17,000,000, about one-seventh of the total excedent of imports upon exports; and this difference is exceeded only by that of metals and mineral products, especially coal. But while the latter is a deficit with which Italy can do nothing directly, the former deficit is our own fault and we could repair it, instead of paying so many millions abroad, much more than we pay for wheat and flour and meat, the scarcity of which is so justly lamented.

A few figures will be sufficient index of the deficiency and inferiority of forest production in Italy, brought about by the negligent way in which it has been conducted. Whereas in countries which have a progressive sylviculture, like Germany and Austria-Hungary, the annual timber product of an acre of forest is a total of 45 cubic feet; in Italy this product is only 30 cubic feet.

A more serious side of the question, however, is that we produce only 3.75 cubic feet per acre per annum of the product which has really the greatest value—timber—while the other producing countries nearly quintuple this amount, having a timber product of 18 cubic feet. The consequence of this is that our timber consumption is also abnormally restricted, being 3.7 cubic feet per inhabitant per annum, instead of 15 cubic feet, as in the industrially progressvie countries of Europe, like England, Germany and Switzerland. There is a vast difference between these figures and those of the United States, where the annual consumption per inhabitant is 160 cubic feet.

This enforced restriction in the consumption of wood, and especially of timber, is a serious impediment to many national industries. It was well, therefore, that the Second Italian Forest Congress, held at Turin on August 28-30, 1911, for the purpose of indicating the direction taken by the positive forest policy affirmed in the first Congress at Bologna, gave particular attention to the problem of forest production. This is the foundation of the Italian forest policy as of every other, because it alone puts this policy on a sure and

A TREE IN THE GREAT ITALIAN STATE FOREST, TUSCANY.

AFFORESTATION IN THE APPENINES, ITALY.

sound basis; otherwise,—it is useless to deceive ourselves—if the criteria of unsound forest administration followed in Italy up to the present be continued, any forest policy or action whatever is foredoomed to certain failure, being in antagonism with the very essence of national economy.

NEED OF NATIONAL POLICY

In fact, also for Italy, a policy which recognizes and promotes the economic importance of the forest is the only concrete, truly national policy.

This is the fruitful principle of every sound forest policy, in Germany, Austria, Switzerland, Rusia, India, Japan, Australia, and let us hope also in America; and we must adopt it in Italy also, following the Scandinavian, English and Australian example and the strenuous defenders of the forests in America, if we wish to reconstitute a productive and permanent forest wealth. We must preserve and develop this wasted forest wealth of ours by means of rational utilization, if we do not wish to suffer one of these days from the threatened scarcity of wood which is already pressing upon us.

Dr. Fernow, in his suggestive and learned *History of Sylviculture*, thus briefly defined (1) the reasons of Italian forest impotence:

"The difficulty of determining what is and what is not necessary to reforest, what is and what is not absolute forest soil make ostensibly the greatest trouble and occasioned delay, but financial incapacity and political influences bidding for popularity are probably the main cause of the inefficiency."

But at the first Great Italian Forest Congress which brought together in June, 1909, at Bologna, under the patronage and with the strong interest of H. M. the King of Italy, all the highest personages of the political, agricultural and economic worlds of the Italian Nation, the principle of the positive intervention of the State was proclaimed for the first time in Italy, and crystallized in the following vote, proposed by the Minister of State, Hon. Luzzatti:

"The Congress decides that in conjunction with all the prohibitive and limitative bonds must be associated a positive policy of the State, which has up to the present been lacking."

A STATE FOREST LANDS ENTERPRISE.

And it was as a matter of fact in actuation of the vote of the Bologna Congress, which found a wide echo in Parliament and in the country, that the law entitled "Provisions for the State Forest Lands and the Guarding and Encouragement of Sylviculture," was passed in June, 1910, by the Chamber and Senate. This law, which materialized the vote of the Forest Congress of Bologna, has as its main object the creation of a State Forest Lands Enterprise, instituted under the form of an autonomous undertaking, for the purpose of "providing, by means, of the amplification and inalienability of State forest property and by giving the example of a good industrial regimen, for the increment of sylviculture and the commerce in national forest products" (Art. 9).

As far as the safeguarding of sylviculture is concerned, it is provided that the forest belonging to the communes, provinces, public institutions, corporations, associations and share companies must be utilized in accordance with the prescriptions of the forest authorities.

For the reconstitution of extremely deteriorated forests, the Ministry is authorized to grant the technical direction gratuitously and to give bonuses of from $4 to $8 per acre.

Barren lands, or those covered with grass or bushes, which are submitted to a rational reafforestation by their owners or by societies of owners are declared exempt from the land tax for 15 years if planned for coppice, and for 40 years if laid out for high forests.

The Forest, central and local authorities also should give gratuitous assistance to forest growers for the defense of small mountain properties and for the encouragement of the foundation of associations and societies of forest owners.

The sum of $6,600,000 is ascribed on the budget for the first five years from the putting into force of the law; after which period the necessary increases will be settled fixed in the agricultural budget.

Now, as we have already stated, when once the principle of the positive intervention of the State was affirmed, it was necessary to establish in what way this intervention should be brought to bear on the lofty task of bringing about the resurrection of Italian forest culture, and of regulating the regimen of the waters compromised by the deforestation.

And it was thus, at the Second Italian Forest Congress, held at Turin last August, that among the other reports discussed and approved was that of Messrs. Maganzini and Valentini, civil state engineers, illustrating the plans for the application of the new law for mountain basins, approved in July of this year; which law was prepared by Mr. Maganzini himself, who is a member of the Superior Council of Public Works, and fixes a fund of $13,000,000 for the regulation of the fluvial basins, most of which are torrential.

REFORTS ON THE SITUATION

A report of the Superior Forest Inspector, Manfren, and the Under Inspector, Di Tella, was then approved; this report established the necessity for a system of forest statistics. Another report that was approved was that by the writer of the present article, materializing the technical problems of Italian sylviculture in the following manner, in order that sure and efficient working plans might be prepared:

1. To improve and render less costly the technics of afforestation;
2. To improve existing forests, and more particularly:
   (a) to insure the most rapid regeneration of the forests, after the removal of the cutting products;
   (b) to cultivate the most remunerative timber species;
   (c) to bring to full density forests of low yield;
   (d) to produce plants of good form and quality;
   (e) to obtain the greatest volume increment possible contempo-

TREES IN THE ITALIAN STATE FOREST, TUSCANY.

YOUNG APPLE ORCHARD, YAKEMA VALLEY, WASHINGTON.

raneously with the fuller density of the forest and the better quality of the wood.

As to this end affirmed as the principle of every positive forest policy that:

"A forest must be considered and guarded as a productive capital to be submitted to regular management, as a protection against the erosion of the soil and a regulator of the circulation of the waters."

And expressed the desire that the institution of a Forest Experiment Station, with the following definitive aims and relative endowments, should be rendered compulsory in the bill presented to Parliament for the reform of forest instruction:

(a) to prepare the yield-tables of the principal tree species, native and acclimatized;

(b) to study the acclimatization of new remunerative forest species;

(c) to study and improve the methods of forest plantation;

(d) to study the technical properties of Italian timber products with the object of a better utilization; and finally, recommended that in order to get a preliminary knowledge of the elements of forest production in Italy, which is of such great economic importance and urgency, the inquiry into the private forest production started by the *Federazione Pro Montibus* be intensified and extended as much as possible.

In this way we shall have learnt the lesson taught by Dr. Fernow, and the seeds planted by the Congresses of Bologna and Turin will take root and develop to the benefit of the entire Italian nation, the forest economy of which, on account of its geographical formation, its climate, its commercial exchanges and industrial development, should form a third part of the entire economy of the nation.

The Italian Forest Congresses will be continued and organized every two years by the *Pro Montibus* Federation (Piazza Borghese 3, Rome, Italy), which was constituted precisely on the occasion of the Bologna Congress for the purpose of promoting more particularly the improvement of sylviculture, reafforestation, the systematization of the mountain forests and forest economy in general. Its President is Hon. G. B. Miliani, a strenuous and great paper-mills and lands owner.

The man who makes the greatest success of orcharding at the present time is the man who is giving the most attention to the control of insect pests in his orchard. While this may not be absolutely true in all cases it is true in the majority of them, at least.

Next summer the forests of Michigan will have the added protection of a big force of Michigan Forest Scouts, the boy organization now being perfected by Major W. R. Oates, State game, fish and forest warden, as a means of interesting the lads in the conservation of the woods as well as teaching them woodcraft in a practical way and then putting their knowledge to a practical use.

THE GREAT AMERICAN DESERT*

By C. J. BLANCHARD

Statistician, U. S. Reclamation Service

TO the bulk of our citizens the Great American Desert is still a region apart, and illusions concerning it which obtained in the days of Webster and Clay still persist. The average citizen of the East, whose vacation is usually spent abroad, and there are more than 200,000 unpatriotic Americans who annually seek their recreation in the Old World, regards our rainless country as the habitation only of hostile savages and deadly reptiles. Millions of our people, crowded in our great cities, have never felt the uplift of its unmeasured distances and its far-flung horizons. To those the desert means desolation, thirst and loneliness; a waste place, forbidding and terrible, wherein civilization has no place. Instead of a level plain of sun-baked, shifting sand, our desert is a region of varied and interesting topography, with every gradation of climate from semi-tropic to north temperate. It posesses all the climates of Europe, while its scenic wonders have no rivals in any country. In our desert proper are located all the important National parks, whose 5,000,000 acres of territory embrace more natural wonders than can be found in all other parts of the world.

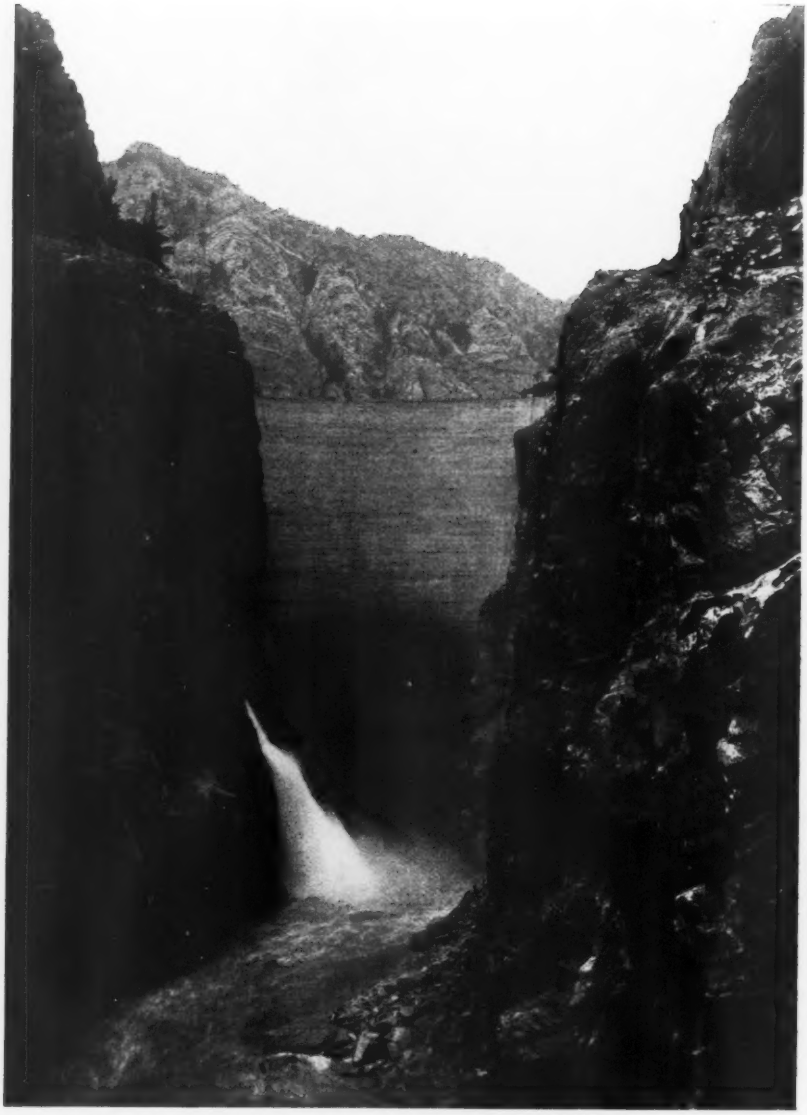
To those of you who are accustomed to taking your vacations abroad, I wish it were possible to convince you that in our own country there are mountains which in sublimity and grandeur equal any in the Old World. The traveler may enjoy the wonders which a prodigal Nature has lavished upon us with a greater degree of ease than he finds in Europe tours.

Infinite variety characterizes the colors of the desert, for this is a land where the atmosphere itself has color. Strange and incomprehensible are the magical changes of tint in rock and bush and cloud at different hours of the day. These colors are often so transitory that the eye receives impressions which the mind refuses to accept as real.

The West needs more people and more money. If we could divert one-half of the present tourist travel from Europe toward the West we would hold in circulation in this country more than $250,000,000; all of which is now annually expended abroad. The knowledge of the West and its resources gained by the tourist on his trip to view our scenery would increase his confidence in western securities and would encourage larger investment. The lure of this new country is so compelling that many who come would remain and take their part in its upbuilding. The returning tourist would direct others to seek the pleasures which have been enjoyed by him.

Two economic problems of obvious importance confront the people of the country today, viz: increasing the opportunities for our citizens to acquire

PEACH ORCHARD ONE YEAR OLD ON THE "MAPLETON BENCH." WASATCH MOUNTAINS IN THE BACKGROUND.
STRAWBERRY VALLEY PROJECT, UTAH.



SHOSHONE DAM, WYOMING, 328.4 FEET HIGH. HIGHEST DAM IN THE WORLD.
80 FEET LONG AT BOTTOM, 200 FEET AT TOP.

homes of their own, and a larger production per acre of staple crops. While we have not yet reached the acute stage in the struggle for existence which prevails in many parts of the old world and the Orient, we are not far removed from that critical period when over-population and under-production shall become vital questions with us. The enormous increase in the cost of the necessaries of life during the past decade, and the consumption by our own people of nearly all of our cereals and meat products, furnish abundant evidence of the imperative need of better farming on the present cultivated acreage and the addition of new areas.

Notwithstanding the relatively large increase in our cultivated areas, and consequent augmentation of products, the growth of population has more than kept pace. There has been a continuous and rapid rise in farm land values, with a resulting decrease in the opportunities for men of moderate means to acquire homes. Naturally the centralization of a large percentage of our population in cities has continued. Unquestionably it is true that we are not short of land, but of what avail is it if this land is beyond the reach of the great masses of our people by reason of inflation in values, or because Nature has not made it ready for the plow.

The National Irrigation Congress has to its credit the initiation of one constructive legislative measure, the Reclamation Act, which in time will be regarded as the most valuable work of our national lawmakers since the passage of the Homestead Law, which opened to settlement the Mississippi Valley. It has under consideration now another measure of equally great importance, the drainage of the vast areas of swamps.

THE DESERT OF TODAY

The desert of our old geographies no longer has a place on the map. Its boundaries have shrunken until they are almost indeterminate, while its terrors are only traditions.

Today the homes of more than 300,000 happy families, surrounded by 13,500,000 acres of irrigated land, have been established, and the harvests contribute annually $300,000,000 to the wealth of the farmers.

The magic of irrigation has transformed valleys long vacant and voiceless into prosperous and populous agricultural communities. It has created hundreds of cities, towns and villages, many of which have become financially and commercially great. It has brought to the remotest parts of the desert the benefits of transportation by steam and electricity.

National irrigation has already gone beyond the stage of prophecy. The material and substantial results flowing from the law places the work of the Government on a practical and solid foundation. Facts, not theories, furnish the arguments for continuing the work, and for increased appropriations to enlarge and extend its scope.

A brief summation of the activities of the bureau shows the magnitude of the work accomplished. These data are assembled to October 31, 1911. Construction is going on or has been completed on 29 projects, involving an expendi-

ture of $65,470,000. In the eight years of actual work the Service has dug 7,000 miles of canals, many of which carry whole rivers. These canals placed end to end would reach from New York to San Francisco and back to New York. The tunnels excavated, mostly through mountains, have a length of more than 19 miles. The excavations of rock and earth amount to the enormous total of 77,200,000 cubic yards. As much of its work is located in regions heretofore almost inaccessible, it has been necessary to build and maintain 570 miles of wagon roads and 1,700 miles of telephones. The Service has in operation 275 miles of transmission lines, and is furnishing its surplus power and light to several cities and towns.

It has completed three of the greatest irrigation dams in the world, and the storage capacity of its reservoirs, several of which are now full, is 10,000,000 acre-feet, or enough water to cover that many acres a foot deep.

In its construction work the bureau has purchased 905,827 barrels of cement, and its own mill manufactured 340,000 barrels, effecting a net saving of $600,000 by so doing.

VAST INCREASE IN LAND VALUES

Water is now available for 1,086,000 acres of land, upon which approximately 14,000 families are residing in their own homes. As a result of the investment already made by the Government, land values have increased more than $105,800,000. The astonishing increase in land values resulting from the reclamation of desert land is shown in a recent sale of a forty-acre farm adjoining the Government townsite of Rupert on the Minidoka project in Idaho. This tract of land in 1904 was sage brush desert and valueless. This spring it sold for $11,000. It was filed upon as a homestead, and the original entryman had paid back to the Government not more than three annual instalments of his water right, or less than $8.00 an acre. On several projects a single crop has enabled the settler to repay all his obligations to the Government.

The gross value of crops grown on the projects in 1911 is estimated at $24,000,000.

The growth and development of the towns on the reclamation projects are proceeding along lines which have promoted numerous communities in southern California now recognized as nearly ideal centers of population. In substantial business blocks, in commodious schoolhouses, numerous churches and in artistic and beautiful homes, these new communities are far in advance of those of many older sections of the country.

The small farms intensively cultivated and grouped about these villages and towns give the effect of suburban rather than rural conditions. Cheap power developed from the great dams or from numerous drops in the main canals is now utilized in the operation of trolley lines which reach out into the rural districts and bring the farmer in close touch with the city. It turns the wheels of numerous industrial plants, and various enterprises, in which the farmers are part owners, for storing, handling, and manufacturing the raw products of the farms. The same power is used in the lighting

SALT RIVER PROJECT, ARIZONA, BEFORE IRRIGATION. DESERT WITH CAMEL BACK MOUNTAINS IN THE DISTANCE. (See next page.)

THE SAME CACTUS DESERT AFTER IRRIGATION. NOTE THE CHANGE IN THE TREE LINE.

and heating of the towns, and for cooking in the homes. On several of the projects the farmers are applying for electric power, and on many farms the housewife has made it a useful servant in her domestic duties. This important and very valuable asset will in time become the property of the land owners, and will return considerable revenue to them.

The compact settlement which is the inevitable result of irrigation, brings to the farmer conveniences and luxuries which heretofore were unknown to the country. The daily delivery of mail, circulating library, centralized graded schools, frequent association with neighbors in the management of their various organizations for marketing products, and in the operation of the irrigation system, have made farm life varied and interesting. In no small degree these same factors have been responsible for a noteworthy increase in the number of city dwellers who are turning to the soil for a living. The question "Can a business man without previous experience in agriculture succeed on an irrigated farm?" finds an answer today on a thousand Government farms where former city dwellers are making good. They demonstrate that a good business training is a very important adjunct to successful farming in the irrigated country.

On a number of the projects every acre of land is occupied. So great has been the hunger for farms in some sections that the work could not be pushed fast enough to supply the demand for homes. Those projects possessing the most favorable climate naturally attract the most people. Idaho, California, Oregon, Washington and Colorado, for this reason and also on account of generous exploitation on the part of State and other organizations have received the largest influx of settlers. Every acre of land on these projects for which water is available has been filed upon.

On the Minidoka project in Idaho there were 1,014 farms, and practically every one was taken up before water was ready. On the Yuma project in Arizona the first unit opened had ten applicants for each farm.

Today the 354 Government farms awaiting settlers are in the Northwest in the states of South Dakota, Montana and Wyoming.

WORK FOR THE FUTURE

For the next few years the activities of the bureau will be directed to rounding out the plans for completing the projects already taken up.

Among the spectacular works which will engage the attention of the engineers are the construction of two enormous dams, each of which is comparable with the great Roosevelt dam, and each of which in certain features exceeds the latter.

In New Mexico the work of erecting a huge masonry dam across the Rio Grande will require at least five years of active labor and a large force of men. This structure in some respects is one of the remarkable storage works of the century. It will cost more than $6,000,000, but it will insure the future development of 100 miles of valley, comprising 180,000 acres of extremely fertile and productive country.

The Arrowrock dam in Idaho, upon which construction has begun, stands in a class by itself among the engineering works of the world. In its greatest height, 351 feet, it ranks all others. Its cubical contents will be 500,000 cubic yards.

Appreciating the difficulties which all settlers encounter during the first few years on the desert land, and the outlay of money required to establish a home and prepare the land for crops, the Secretary of the Interior in several instances has formulated a plan for graduating the payments, making the early payments small until the crop returns suffice to meet the charges for building and operation.

There is little or no disposition on the part of the farmers to break faith with the Government. The delinquents are remarkably few and our eastern brothers have no reason to fear that the West will not meet its full obligation in returning the loan which the Federal Government is making. The percentage of actual failures is surprisingly small and the causes therefor are inherent in the individual rather than in any fault in the works or in the country. Given a little capital and an abundance of grit and industry, and there is little cause for failure on the part of any individual.

In the great construction work in which the Reclamation Bureau has been engaged, it has had its troubles and has made its mistakes. It entered upon a field new and untried, and covering a vast area. A fair judgment upon the work as a whole I believe will be favorable, and will furnish arguments for its continuance.

*From address before the National Irrigation Congress.

During January 214,749 *acres of land in the State of Idaho believed to be underlain by phosphate rock were withdrawn on recommendation of the United States Geological Survey. This makes a total outstanding withdrawal in Idaho of* 1,167,137 *acres of phosphate land. In Wyoming* 1,266,688 *acres are now withdrawn as phosphate land, in Utah* 107,745 *acres, in Montana* 33,950 *acres, and in Florida* 35,640 *acres, a total of* 2,611,140 *acres.*

The American Historic and Scenic Preservation Society is preparing to carry out the wishes of the late W. P. Letchworth by turning the meadows and agricultural lands of Letchworth Park, at Portage, into forests for the purpose of demonstrating just how timber can be produced and the depleted wood lands restored.

Prussia has a forest of 7,000,000 *acres. It is very similar to what our Appalachian region would be if we added to it some of the pine lands farther south. In* 1865 *these forests yielded a net profit of* 72 *cents an acre. In* 1900 *the profit was* $1.58. *In* 1904 *it was* $2.50, *and this year it is expected to be around* $5.

There is a prevailing tendency among orchardists to underestimate the danger from hold-over blight in the pear and apple, and with this mistaken idea has crept in a certain amount of carelessness in the attention which is given to diseased trees.

INVESTIGATING FOREST INSECTS*

By DR. L. O. HOWARD
Chief of the Bureau of Entomology

THE news about forest insect investigation is, on the whole, very good, but there is one bad piece of news, and that is that the Southern pine people are going to suffer a lot of damage during the summer in the South. We have been trying to stir the people up, and we have told them what to do this winter. Many of them are going to do it, but not all of them. That is the only bad piece of news. The rest of the news is very good.

The timber owners of the Northwest, with the co-operation of the Forest Service and our own Bureau are doing a lot of administratively experimental work in the way of destroying threatened invasions of the bark beetles in that region, as well as in other parts of the country. The forest insect service of the Bureau of Entomology has studied the question for years, and has elaborate plans which it hopes to put into effect if we can only get the co-operation of all parties interested.

I should say that another very good item of news is that a new Governor has been elected in the State of New Hampshire. One of his predecessors,—I will not mention his name; in fact, I have forgotten it—was hardly as enlightened a man on the subject of forestry and other questions as the present incumbent of the office, and when the gypsy moth got across the State border into New York, I called on the new Governor and found him in his store. I told him who I was and told him of the harmful effects of this gypsy moth. I said I would like to talk with him a little, and perhaps he would like to talk with me and get my views as to how to spend the State appropriation. He said, "Sure, Doctor, you may, but before you begin I want to tell you about myself. When I was a boy, I was living with an old aunt on a farm. Boylike, I thought I knew the whole thing, and so I thought I would give my aunt advice as to how to run her farm. The old lady listened to me with perfect courtesy, and then went and done just as she darned pleased." I took it in proper spirit, but I do not think I would be greeted that way by the present Governor.

By the way, that former Governor appointed a man in charge of the work who had crude ideas. It was stated in the newspapers that this man had a queer idea in regard to the brown tail moth, which was that if all the cities and towns in the State of New Hampshire should shut off their lights about the time the brown tail moth started to fly about, the light of the moon would attract them and they would fly so high that they would die from exhaustion. The present Governor has discharged that man and has appointed a sound man.

There has been some good news about the southern gypsy moth situation during the last year. Of course, you are all familiar with our attempts to import the European and Asiatic parasites of this creature, and then depend

upon their spreading quickly over the country; but the important thing is that even if the parasites do not get control in a number of years, it will still be possible to get a very good situation in regard to forests in New England, because of recent facts discovered about the life and character of the Asiatic moths. There are large owners of pine trees who are particularly apprehensive of the loss of their trees; in fact, the gipsy moth, once on their pine tree, in a pine grove not particularly well cared for, would increase to such an extent that in two years they would kill the tree.

We have found by careful study that the young caterpillars hatched from the egg-mass high up on the trunk of the trees try to eat the leaves and they find they cannot. Then they fall to the ground and eat the oak scrub, until they get full grown, and then they climb up and eat the leaves, thereby killing the trees in two years. Therefore, we put a tanglefoot band around the tree, and we found there was no despoliation, even though the tree above was plastered with egg-mass. In investigating the matter further, we found that there were other varieties of trees which the caterpillars acted on in the same way, such as maples and chestnuts. Where those trees were growing in a mixed grove of trees, the oak scrub and brush were all eaten from the start, but with the eggs laid upon the other trees, the same procedure was followed. They had to find subsistence for the early part of their lives upon the oak scrub, and then they climbed the trees. Therefore, it becomes a system of forest management. An oak forest alone cannot stand the loss; but where you have a mixed forest, and you eliminate the oaks and birches to a considerable extent, you are going to be able to have a forest that will not be harmed by the gipsy moth.

The insect situation on the whole is very good at the present time, and we are elaborating methods of control, which, by the co-operation all over the country of the different States, will enable us to handle this serious matter.

*Address at the annual meeting of the American Forestry Association.

Bids have just been opened at the Forestry Bureau for the cutting of stumpage timber under Government supervision on the Sitgreaves and Apache National Forests and the Fort Apache Indian Reservation. The cutting comprises 600,000,000 *feet,* 300,000,000 *feet on the Indian reservation and* 300,000,000 *feet on the two national forests.*

The largest tract of timber that the Government has ever offered will be advertised by the Forest Service shortly on the drainage of the north fork of the Joaquin River in the Sierra National Forest. Eight hundred million feet are in the tract, consiting for the most part of sugar and yellow pine, white fir and cedar. Its development will probably mean the construction of about 70 *miles of railroad. A line can be built in on the Southern Pacific at Friant.*

A rich citizen of San Antonio, who owns extensive gardens, has announced his intention of giving away thousands of trees and shrubs. Not all of his neighbors are on the receiving list, however, for this man will not give a tree or shrub to other rich people. He will present such things to the owner of a home that is worth less than $2,500. *Persons who own costly residences can buy their own shrubbery.*

TIMBER SALES ON THE PLUMAS NATIONAL FOREST, CALIFORNIA

By RUFUS S. MADDOX

TIMBER sales on National Forests are of so recent origin that their real meaning is known only where they are being made. When the forests were first set apart lumber companies were dubious about attempting purchases, the cutting of which must be conducted by Forest Service methods; but today many companies are operating who are supplied by timber bought from the Government. Timber, when made accessible by a railroad, has a greatly improved market. The Western Pacific Railway through California opened up a large area of forest land—both private and public—the timber from which lumbermen are buying, not only because of its accessiblity, but because they have learned, and are still learning, that they can make profits by operating under Government regulations.

Government sales are managed on one general plan and with one object in view, viz., to provide for and maintain a future stand through measures adopted in logging the present crop. This plan of management eliminates at once the old time method of slashing down a portion of the forest, removing such as is wanted and leaving the area demolished. It is recognized that the market conditions help determine to what extent inferior grades can be handled; in other words, how close the utilization can be made. Formerly, where timber has been abundant and no restrictions put upon the operator, the largest and quickest profits were often aimed at regardless of the conditions after logging. In conservative lumbering or logging by Forest Service methods, therefore, it is necessary that in contracts made with lumber companies certain provisions be made as to what must and what must not be done. For example: none except marked trees shall be cut, brush must be piled, stumps must be cut not over a certain height, care must be had in felling and removing the timber so as to damage the reproduction and remaining stand as little as possible, and the timber used as far as practical.

Of the timber sales now under operation on the Plumas National Forest the two largest are to the Feather River and Marsh Lumber Companies, having headquarters at Portola and Loyalton, California, respectively, and their plants are perhaps fairly typical of the medium size mills in the Sierra Nevada Mountains. They each have five-year contracts (contracts allowing them five years to remove the timber) with the Government totalling 105,000,000 feet board measure, consisting of western yellow pine (Pinus ponderosa and Pinus jeffreyi), sugar pine (Pinus lambertiana), Douglas fir (Pseudotsuga Taxifolia), while fir (Abies concolor) and incense cedar (Libocedrus decurrens), the former sale being for 30,000,000 feet and the latter for 75,000,000 feet.

On these sale areas (as well as on all Government sales) all the timber that is to be removed must be marked by a forest officer. He is responsible for the work whether done by himself or by some one assisting him. Upon his judgment depend the amount and kind of trees that are to be left to form the remaining stand and to restock the open areas. He must know the silvical characteristics of the different species and their relative values. His work does not consist simply of putting the Government stamp on the trees that he wishes removed—that is by far the smallest part of his work. The various conditions of the stand, slope, maturity of timber, soil, etc., present the problems that are difficult, and he must solve them according to his judgment, and treat that portion of the forest in accordance with his decision. Because of the fact that all the marked trees must be felled, he is directly and entirely responsible for the stand remaining, except the damage that may occur during the progress of logging.

After the timber has been marked the Government field supervision of the operations devolves upon the expert lumberman assigned to this forest (Mr. P. A. Kennedy), who sees that the specifications of the contract are abided by, some of the main features of which are that the brush is piled, care taken of reproduction, and stumps cut low. His time is taken up in keeping an oversight on the operations. He inspects the work of the fallers, sees that care is had to prevent breaking from falling; that stumps are cut to service requirements; that the trees are used well up into the tops; in other words, that the utilization from the stump is as close as possible. Under his direction the brush is piled. The crews of brush pilers are shown by him just how the work is to be done and they follow his instructions. His duties do not necessitate his being constantly at the heels of the lumber jacks. They understand that his instructions are to be obeyed, not that he is a "boss," but because it is the policy of the companies to live up to their contracts, and their employees know that his instructions have reference only to the fulfillment of the contract.

THE SCALING OF THE LOGS

The expert lumberman is also responsible for the scaling of the logs. Since his duties require him to be in the woods so much of the time, it is necessary that he have a scaler for each of these sales. They are Forest Service men assigned to that duty under the supervision of the lumberman, who assumes the responsibility. This does not mean that the scalers are irresponsible. It means that the lumberman is responsible for the work done by them, just as the supervisor is responsible for the work done by the expert lumberman or any other man on the forest force. The scaling is done where it is most convenient to the companies. They also have scalers of their own, and it is very good evidence that the Government scale is satisfactory to them, since no complaints have been made by them.

Each company has a camp of about one hundred men, who get out from 40,000 to 50,000 feet per day (per camp). The work is done quite systematically on the plan of "division of labor." The felling, trimming, bucking (sawing

LUMBERMAN P. A. KENNEDY AND HIS HORSE ON YELLOW PINE STUMP CUT ON FOREST SERVICE METHODS ON THE FEATHER RIVER LUMBER CO'S SALE AREA ON THE PLUMAS NATIONAL FOREST.

SIX-HORSE TRUCK HAULING LOGS ON FEATHER RIVER LUMBER CO'S SALE AREA, PLUMAS NATIONAL FOREST, GIVES AN IDEA OF DUSTY LOGGING ROAD.

STEAM LOADER ON MARCH LUMBER COMPANY'S LOGGING RAILROAD, PLUMAS NATIONAL FOREST.

FEATHER RIVER LUMBER CO. MILL NO. 2 OPERATING ON GOVERNMENT TIMBER ON THE PLUMAS NATIONAL FOREST. CUT 40,000 PER DAY.

the trees into logs), snaking, and brush piling are each done by a crew of men who do that and that alone. One feature of the logging, common throughout the Pacific Coast, is the one-man bucking. Two men sawing with the same saw is, so far as I know, never seen except in the case of the fallers. Each bucker has his own saw, furnished by the company, and he uses it alone. The timber is soft and not difficult to saw. Pitch is the worst hindrance and that is readily overcome by kerosene, a bottle of which is carried by each man with a saw.

The milling season for the two companies begins in May and lasts until about the middle or last of November, but logging in the woods may continue longer, depending upon the rain and snow. Up to the present the winter logging has been limited entirely to decking the logs in the woods until the milling season opens in the spring.

THE WORK OF THE COMPANIES

The Feather River Lumber Company to date has been logging altogether with horses, the number required being about fifty or sixty. Their timber is located chiefly on mountain sides sloping into canyons up which logging truck roads are built. A skidder with his team of two or four horses and an assistant is provided for each six-horse team truck. They skid the logs from the mountain sides to landings on the logging roads and help the truck driver load each trip. During the past season the length of the average haul was about two and one-half miles. Six 6-horse trucks making three trips per day supplied the mill cutting an average of 40,000 feet per day, thus making the loads average about 2,200 feet each.

Because of the long, dry summer the logging roads become very dusty and for this reason the 3-trip instead of 4-trip haul was established. Not only is the dust very severe on the horses, but it also necessitates a smaller load than would be hauled on a firmer road.

The logging done by the Marsh Lumber Company is on a different plan, being that of donkey engines and high wheels. The high wheels are a sort of cart made up of a tongue, two high wheels varying in height from 8 to 12 feet, and a large axle to which the logs are swung. They are used on the most level ground, on short hauls not exceeding one-quarter of a mile from the logging railroad. The donkey engines are used to snake the logs from the rough and steep places into chutes that extend from the logging railroad up the ravines and canyons. Horses snake the logs in the chutes to the logging railroad where they are loaded on to the cars by a steam loader.

The Feather River Lumber Company is now making an addition to its method of logging. A standard gauge railroad is being constructed to their main body of timber and a pond dug for the logs at the mill. In connection with their planing mill they have recently installed an apartment for getting out sash and door stock, a product that must be free from knots. By filling bills for sash and door stock they are now able to get out a large per cent of clear lumber which was formerly shipped directly from the stack and sold

common stock. The common lumber is now sawed into short pieces of specified dimensions, thus enabling the knots to be gotten rid of. From two carloads of common one car of clear can thus be obtained. The former, I am informed by one of their officials, sells for about $160 per car, the latter for about $1,000 per car; also some of the knotty lumber from which the clear is cut can be used in the box factory, which they are now building in connection with their planing mill.

DISPOSAL OF THE BRUSH

The long, dry summer and the well exposed situation of their lumber yard make it unnecessary to have drying kilns. The lumber dries evenly and rapidly in the stack, whence it goes directly to the planer. The Western Pacific and the Nevada, California and Oregon Railroads have each a spur into the lumber yard, making transportation easy to local and distant markets.

Perhaps, to the nonconservative lumberman and to people unacquainted with the danger from fire in slash, it may seem not only unnecessary, but even an imposition upon a company to have to pile the brush so that it may be burned; but for safety to the forest and for the promotion of rapid restocking after logging, the disposal of the brush by piling and burning is both an economic, and in fact, the only business-like way to handle it, since there is not yet any way to utilize it. The cost of the brush piling devolves, of course, upon the operator, but at a small amount per thousand feet, amounting on these two sales to between 15 and 20 cents. The cost of this brush piling, however, is taken into account when reckonings by the forest officer are made for the cost of logging upon which the stumpage prices are recommended before the sale is made; it, therefore, can not be called an extra expense put upon the operator, not an expense which has had no consideration.

The burning of the brush has thus far been done by forest officers, although the companies agreed in their contracts to furnish help when called for. The brush burning does not consist merely of burning brush. If so, it would be most quickly and most readily done in dry weather, but with every chance for a forest fire, and also the actual destruction of a great deal of the reproduction as well as a great many trees.

The fall of the year is the time aimed at in which to dispose of all the brush from the sales. Speed is not an essential factor in this kind of work. The fall rains or snows must have set in in order for the least damage to result. Usually by that time (the middle or last of November), the forest officers can be shifted so as to take charge of the work instead of depending upon outside help. Ordinarily, when a light snow one and one-half to two inches deep has fallen, the time is ideal for burning. Naturally, the air is cold and no fire can spread; no great amount of heat is conducted to the seedlings, large reproduction and trees. The snow on the piles melts, runs through the dry brush, and prevents the blaze from becoming so intense. The brush from these two sales for the past season's cutting has already been disposed of. The light snow that remained through the ten days of this work

(November 11 to 22), afforded almost ideal conditions and the amount of damage done to the reproduction caused from the disposal of the brush from about 10,000,000 feet was almost negligible.

As a protective measure against fire, about four miles of fire lines on the Marsh Company's sale area was constructed during the fall by men not in the service, but employed by the service for this work, under the supervision of a forest officer. The construction of the line consisted of clearing a trail eight feet wide of all debris and piling it so as to be burned. The line was made between the sale area and private land, a good deal of which was slash from the Marsh Lumber Company's own private cutting. This system of protection will be conducted on all the sale areas of the forest. The fire lines not only afford ready help in case of forest fire, but also make up a fine network of useful trails on many portions of the forest as the timber is removed.

A VIGOROUS PROTEST

MR. GIFFORD PINCHOT, one of the vice-presidents of the American Forestry Association, has issued an appeal to Congress in which he makes a vigorous protest against the proposed reduction of the annual appropriation for fighting forest fires, from $1,000,000 to $200,000. He points out that the value of the forests of this country is estimated at fifty million dollars with a potential value of a billion dollars, not considering the protective value of the forests on the stream flow.

Mr. Pinchot says that the emergency forest fire fund of the Forest Service should be at least $500,000. He says:

"The protection of public property and of the lives of settlers, their wives and children, as well as of public servants in the National forests, lies close to the public welfare. It is easy to malign the Forest Service as certain members of Congress are accustomed to do. But it is much easier to malign the Forest Rangers than it is to do their brave and efficient work on the fire line. We must not let false economy further imperil the safety of the public resources and the protection of human lives."

During the month of January more than 30,000 *acres of land in Montana and Oregon were recommended by the United States Geological Survey for designation as enterable under the Enlarged* (320-acre) *Homestead Act, and* 23,097 *acres previously designated under this act were reported to the Secretary of the Interior as not enterable and canceled as such, detailed examination having shown the lands to be susceptible of irrigation.*

PROGRESS IN FORESTRY PLANTING IN THE NEBRASKA SAND HILLS

ONE of the largest tree nurseries maintained by the Federal Government is located at Halsey, Nebraska, (and is maintained) in connection with extensive planting experiments to determine the possibility of producing a forest growth within the sand hill region of western Nebraska. But a very small per cent of the sand hill land is fit for agriculture, the greater portion being a rolling hill country covered for the most part with coarse grass that is but indifferently suited to grazing. When the sod is broken up the fine sandy soil drifts badly—so badly, in fact, that hundreds of "nesters" who have tried to make a start in this region have moved out only when their fields have blown into the next section or county. This may seem to those unfamiliar with this region an extraordinary statement. However, when one understands that the soil has the appearance of fine sea-sand; also that the wind blows fiercely throughout this entire country, the statement does not appear so overdrawn. On a bright day in spring in the sand hill section of Kansas, with what is known in that country as only a brisk wind, it is possible to locate all of the ploughed land for from 15 to 20 miles around by the dense clouds of sand that stand out against the blue heavens like pillars of gray smoke.

Experiments carried on at Halsey for the past seven years have proven pretty conclusively that success can be secured in plantings, provided only good sturdy stock is used and the plants are put in with care.

THE ANNUAL PRODUCTION

The capacity of the nursery has been raised to an annual production of 2,000,000 plants, and as transplanted 1—2 and 2—1 stock is used, some time will be required to get the nursery up to this output. The sandy soil which is readily worked, make excellent seed and transplant beds, provided it is heavily fertilized with well-rotted manure and an abundance of water is used. It is next to impossible to use water to excess, as the soil is so light that within one hour after completely flooding the soil can be worked to advantage. An abundance of water is secured from the Loupe River by pumping, and irrigation is used throughout the nursery except on the seed-beds, for the period of two or three months after sowing. The beds are made on a level with the paths. If irrigation is started and it is found that the paths are lower than the beds, they are filled in so the water will run directly over the bed and not in the paths.

The beds are sown during the month of April, so the plants which are produced at a density of from 6,000 to 8,000 to the bed, 12 ft. by 4 ft., will get the full benefit of the entire growing season.

The beds are sown and covered with burlap, which is placed directly upon

FROM SIDE HILL ABOVE NURSERY HOUSE, SHOWING JACK AND SCOTCH PINE, 1904-05-06-07 PLANTING. HALSEY NURSERY, NEBRASKA NATIONAL FOREST.

SEVEN-YEAR-OLD JACK PINE. NOTE THE LOOSE SAND IN THE FOREGROUND. NEBRASKA NATIONAL FOREST.

NOTICE THE FURROWS IN THE PLANTATION TO THE LEFT. THE SOIL HAS ENTIRELY DISAPPEARED IN THAT PORTION OF THE GUARD EARLIER PLOWED. DISMAL RIVER DIVISION, NEBRASKA NATIONAL FOREST.

THE WIND DIRECTION IS FROM WEST TO EAST, AND THE MAIN FIRE GUARDS ARE FROM NORTH TO SOUTH AND IN ADDITION TO THESE ARE CROSS GUARDS FROM EAST TO WEST. NEBRASKA NATIONAL FOREST.

the ground. The beds are then covered with a slat shade frame about 12 to 14 inches above the surface of the bed and the sides are protected with boards. As soon as germination starts the burlap is removed and the ground kept moist. The boards protecting the sides of the beds are also removed soon after germination is complete.

Where the plants can be developed to sufficient size, say six to seven inches in height the first year, good results can be secured by transplanting to the transplant beds the following spring. Where the plants are left two years in the seed beds a greater loss is experienced in transplanting, to say nothing of the cost of keeping them the extra year in the seed beds. Where the ground has been put in good shape, five men and four boys, using the "trencher" spade and the transplanting boards, can put in from 20 to 24 thousand per day, and do it well.

IMPROVED METHOD OF PLANTING

As soon as the ground is free from frost in the spring, the field stock is taken up, heeled in, and covered with a layer of coarse hay. The field planting is started just as soon as a gang of men can be secured, and when a sufficient amount of field stock is ready to keep the field gang going. Eight men with six horses, and using the trencher plough, can field plant from 11 to 14 thousand trees per day. This method gives a figure per man far in excess of that where the spade or dibble is used and a correspondingly low figure of cost. The results in living trees from the two methods of planting are about equal.

The question of the protection of these plantations from fire is of first importance. In locating the plantation, the first step has been to develop a complete system of fire guards that will protect the young pines from the fires in the tall coarse grass. These may be started by lightning, through the carelessness of a "nester," or by railroad engine sparks. As the prevailing winds are from west to east, the main guards are from north to south and protect the plantation on the west. On the south and east reasonable protection is assured by the Loupe and Dismal rivers. The main guards are 175 feet wide with a ploughed strip one rod wide on the outer edges.

During the early winter, a time when the winds are not bad, particularly at night, the grass between the ploughed strips is burned off. It takes two years after such a burning for the grass to become sufficiently thick to burn again. In addition to four main guards, which are about one mile apart, there are cross guards running east and west that divide the plantation into comparatively small blocks and thereby give ample means of checking or confining a fire that may start within the plantation proper. These cross guards are single ploughed areas one rod in width. Owing to the fineness of the sandy soil the guards can practically be made permanent by disking the first and second years after ploughing, to destroy the sod and weed growth. After this sod is destroyed the soil drifts and the guards become "blowouts" that require very little cultivation.

As the plantation becomes larger the guard system will be extended ac-

cordingly. This can be done at no great cost, since the original ploughing can be contracted for $6.00 per acre and the disking can be done for far less.

It is not surprising that the settlers of this region take a keen interest in this work, as practically every land locator in this vast, treeless, wind-swept region feels the necessity of a shelter wood that will protect his buildings, garden and small fruits. A picnic is held at the Halsey Nursery each year and the settlers come many miles to observe the progress of the work.

The Kinkaid Act that was passed by the last Congress, provides that the Government shall distribute trees from the Halsey Nursery to settlers who have taken lands in that region. To provide for this distribution, the output of the nursery will be greatly enlarged, and it is hoped that by another year or two, 25,000 pine trees of different species will be ready for distribution under this Act. Some time will elapse before the nursery can fully meet the demands for this distribution, since from two to three years are required to produce a hardy transplant fit to survive under the rigorous conditions of the region.

THE CHESTNUT BLIGHT CAMPAIGN

By PERCIVAL S. RIDSDALE

FOLLOWING heated discussions as to the value of fighting the destructive chestnut blight, for which scientific men have been unable to discover a remedy, the Chestnut Blight Conference, held at Harrisburg, Pa., on February 20 and 21, decided to endorse the work of the Pennsylvania Commission which has directed the cutting down of affected trees, urged the national government, the State governments, and Canada to follow the example set by the Keystone State, and called upon Congress to pass the bill providing an appropriation of $80,000 for the use of the Department of Agriculture in investigating the disease and endeavoring to find some method of eradicating it.

It was also decided, in order to overcome the financial loss caused by the cutting down of affected trees and to stimulate trade in chestnut timber, to ask the Interstate Commerce Commission to permit railroads and other transportation companies to lower freight rates for the distribution of the unaffected timber and as much cutting as the market will permit was urged.

It was deemed wise to also arrange for more systematic publicity and educational work so that small wood lot and other private owners may be instructed how to detect the disease and what to do when they discover its presence.

There is no doubt but that great good will result from the meeting. Twenty-one States were represented, some of them by a number of delegates, and Canada also sent one expert to learn what he could of the disease. Several papers were read and addresses made on various phases of the blight, its introduction into this country and the methods employed by various

persons and organizations in fighting it, and these were followed by most interesting discussions.

Several able men expressed the opinion that it is merely wasting the people's money to fight the blight when there is no certainty that the methods employed would prove effective. On this point there were some heated discussions, the men opposing it contending that no progress would have ever been made in anything had it not been that optimistic men had tried various plans for accomplishing the results desired. "Had we waited," declared I. S. Williams, deputy commissioner of the State Forestry Department of Pennsylvania, "until it was possible to build a perfect engine, we would not have locomotive engines, trains and steamboats today." His views were generally shared by a majority of the other delegates and it was decided that any methods tried in an effort to eradicate the disease were of benefit. Many, it was said, might prove failures, but they would show how not to fight the blight, while there is always the possibility that the right method would be discovered during the experiments.

THE METHOD OF FIGHTING

What has been most effective so far in the effort to check the disease has been the cutting down of diseased trees as soon as they are discovered, and the establishing of dead lines on the borders of land to which the disease has spread. This has resulted in greater good than any other method and is now being generally adopted.

There were a number of advocates of cutting down, at once, every stand of valuable chestnut timber in affected territory and marketing it, in order to prevent the blight extending further, but it was pointed out that this would be no assurance of the blight not appearing in other localities.

As to the means by which the blight spreads opinions differed. Some believe that woodpeckers, other birds and squirrels are the chief mediums for distributing the parasite while the majority held that the spores are so very light that particles of them can be carried long distances on a light wind. The concensus of opinion was that the wind is a far greater aid in the distribution of a blight than is any other medium. It was also admitted that the holes which the woodpeckers bore in the trunks of trees in search of grub worms permit easy ingress of the chestnut blight parasite, with the result that it soon penetrates beneath the bark.

Members of the Pennsylvania Commission urged the adoption of their plan of preventing the spread of the disease. This is to at once cut down and destroy any affected trees, and to as far as possible establish a dead line and confine the affected area within it. This appears to be the only plan at all effective so far in checking the blight.

Members of the Commission also wanted the convention to know that out of the State appropriation of $275,000 for investigating the disease only a little over $20,000 has so far been spent.

As to the value of the trees and the cost of the destruction already caused by the blight there was not much dispute. It was reported that the loss in Pennsylvania so far is about $10,000,000. The annual cut of chestnut in the United States is valued at about $20,000,000, and the total loss so far is estimated at $25,000,000.

Dr. Hugh P. Baker, of the Pennsylvania State College, estimated the value of the chestnut timber of the country at $300,000,000 and said that the loss so far is two thousand times what has been spent for protection. He said that each State needs an annual appropriation of from $20,000 to $50,000 to fight the disease and conduct its investigations.

It was also reported that affected timber cut down and marketed is of far poorer quality than healthy trees and that the railroads have reported that diseased chestnut timber made into railroad ties does not hold the spikes tightly.

Governor Tener, of Pennsylvania, opened the convention with an address in which he dwelt upon the necessity of vigorous efforts being taken to prevent the entire destruction of our chestnut trees by the blight. Dr. R. A. Pearson, of New York, was elected chairman of the convention, and F. W. Beasley, of Maryland, and S. D. Detwiler, of Pennsylvania, the secretaries. Addresses were made by Dr. J. K. Collins, of the United States Department of Agriculture; Prof. F. C. Stewart, of the New York Agricultural Experiment Station; Prof. W. Howard Rankin, of Cornell University; Prof. H. R. Fulton, of Pennsylvania State College; Dr. Caroline Rumbold, of Pennsylvania; Prof. Nelson F. Davis, of Bucknell College; Samuel B. Detwiler, of the Pennsylvania Chestnut Tree Blight Commission; Dr. Hugh P. Baker, of Pennsylvania State College; Dr. J. Russell Smith, of the University of Pennsylvania. In addition, many of the State foresters and experts reported conditions in their own States, took part in the numerous discussions or participated in asking questions regarding specific conditions.

Altogether the convention was a most enthusiastic gathering and one which it is certain will result in great progress being made in the fight against the destructive blight.

W. B. Greely, silviculture branch of the Forest Service, in speaking of the killed timber which had been sold recently, gave the following figures: In the last 18 *months the Government has sold* 365,000,000 *feet in western Montana and northern Idaho. The most recent sale, two weeks ago, was a tract of* 25,000,000 *feet on the Two Medicine River, on the Lewis and Clarke National Forest. This consisted mostly of logpole pine, Douglas fir and Engelman spruce. Fifty-five million feet was recently sold on the St. Joe River in Idaho. This was mostly white pine.*

FOREST SCHOOL OF THE UNIVERSITY OF IDAHO

THE School of Forestry of the University of Idaho was organized in September 1909. Idaho has approximately 150,000,000,000 feet of excellent timber practically untouched by the ax and saw. The State also has vast areas of absolute forest land, now treeless, which should be placed under forest management and made to produce to its utmost that for which it is best adapted, namely, forest products.

Because of these enormous forest interests it was realized at the outset that forestry would soon occupy a prominent place among the courses offered at the University.

In addition to the extensive timber holdings of private owners, and of the State, large corporations control over 2,000,000 acres, and the National Forests include over 20,000,000 acres. The administration of these vast forest regions calls for the services of many men trained in forestry subjects. In the northern part of the State, covered as it is with heavy forests now ready to be utilized, the present demands are along the lines of protection, development and utilization. In the southern part of the State, which is practically treeless, farm forestry, grazing and reforestation problems are most urgent. In fact, Idaho demands two classes of foresters trained for very different lines of work.

In view of the varied demands of the State it seemed wise to organize two four-year courses in forestry, one in the College of Letters and Sciences and one in the College of Agriculture.

This has been done and the plan is working in a very satisfactory manner. The two courses contain exactly the same forestry subjects but the first named aims to prepare technical foresters, having as collateral courses a liberal training in mathematics, languages, physics and chemistry. The students completing this course have an excellent foundation for research work should they desire to specialize in any of the utilization branches. They are also valuable as forest assistants and are sought by the lumber companies.

The course in the College of Agriculture is somewhat lighter in the number of credits required and aims to develop the student more fully along biological and agricultural lines. These students are well prepared to fill field positions, dealing with grazing, farm forestry, protection and reforestation. The demand for men of this class to fill positions as rangers and deputy supervisors will be large in Idaho for years to come.

Very little if any additional expense has been incurred by offering the two courses instead of one as we meet the demands of the northern half of the State by co-operating with the faculty of the College of Letters and Sciences while those of the southern half are met by co-operation with the College of Agriculture.

A short course of ten weeks is offered for rangers, a course in general forestry for the students of the various departments of the University, and a short course in farm forestry for students in the College of Agriculture.

Dr. C. H. Shattuck, head of the department, has been a student of forestry since the movement first began to attract attention in this country. To a thorough scientific training at the University of Chicago, where he took his doctorate in botany, and special courses in forestry at the Biltmore Forest School, he has added years of practical experience in field work in the main forest regions of the United States. He is devoting his attention to lumbering, utilization, and management.

Prof. H. A. Wadsworth is a graduate of the Idaho Forest School, 1911. He is devoting special attention to forest engineering, protection and mensuration. He has been in the employ of the Forest Service during the past four summers and has had an excellent opportunity to study the practical problems in his lines as they occur in the field.

The entire time of both instructors is occupied in teaching forestry subjects only. All mathematics, language, biological and argicultural subjects, etc., are taught by the specialists in charge of those departments. Special lectures and courses are given on various forest subjects by Forest Service officials and other specialists. Throughout all the work of the forestry courses emphasis is placed on laboratory exercises and work in the field. As far as it is possible the student is made to learn by doing.

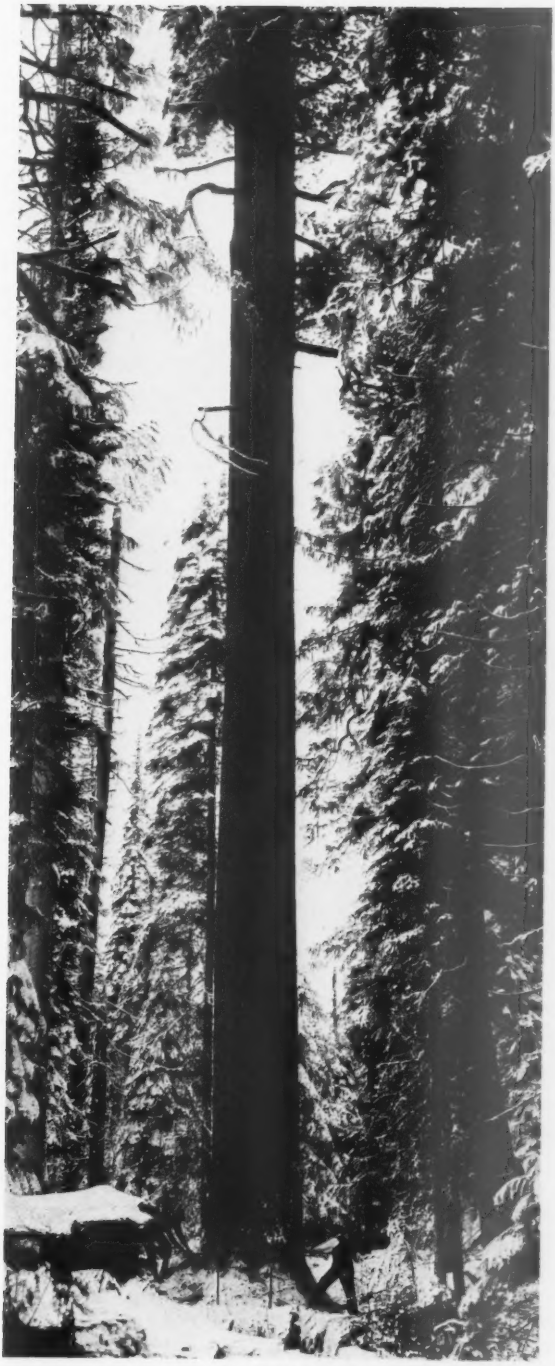
NATURAL ADVANTAGES

The finest forest of white and yellow pine, larch, and cedar to be found in the world are easily accessible to Moscow, while heavy forests of spruce, white and red fir, and other species can be reached in a few hours.

Some of the largest sawmills ever built, with all that is latest and best in equipment and methods of operation, are close at hand, while pulp and paper mills and other secondary wood-using establishments are within easy reach. Moscow is in the heart of what will soon be one of the greatest wood-using centers in the country.

EQUIPMENT

The forest laboratories are equipped with ample apparatus for thorough work in such courses as require indoor study. A very full line of microscopes and microscopic and lantern slides is available for use in the study of plant tissues—mechanical and other structures peculiar to different woods, as well as for the study of the pathology of woody stems and leaves and the life histories of insects and fungi injurious to trees. The department has also a full line of forest insects and fungi known to be injurious to the forests of the State, an herbarium of trees and shrubs of the Northwest and a complete collection of the tree seeds of American trees. A collection of several hundred species of the most valuable woods, both native and foreign, is also available. A great variety of logging, lumbering and foresters' tools and instruments is at the disposal of the students. The department is also equipped with



LARGEST KNOWN WHITE PINE TREE. PROPERTY OF POTLATCH LUMBER CO., 20 MILES FROM MOSCOW, IDAHO. 207 FEET HIGH. 425 YEARS OLD.

UNIVERSITY OF IDAHO STUDENTS IN FOREST ENGINEERING ABOUT TO REMOVE A TREE IN THE WAY OF A TRAIL.

THE SAME TREE FIVE MINUTES AFTER BLASTING BY UNIVERSITY OF IDAHO STUDENTS.

a Gurley mountain transit, compasses, levels, plain tables, traverse boards, etc., for use in forest engineering. Ovens, baths, retorts, scales and chemicals are at hand for use of the students in timber physics and by-products work.

Students in timber testing have access to a 200,000-pound capacity Olsen universal testing machine in the department of civil engineering. This machine is completely equipped for tension and compression tests with beam extensions for transverse tests of full sized beams up to sixteen feet in length.

An arboretum and demonstration plot of about five acres has been set apart for work in silviculture, where about one hundred and forty species of forest and park trees are being grown. A nursery and greenhouses are also available for use of the students in silviculture. The University has secured six hundred and forty acres of excellent timber land near Moscow, and the students spend part of each school year at practical work in this forest. The library is supplied with the best works on forestry and related subjects, and the reading tables contain the leading periodicals and trade journals on lumbering and other phases of forestry. These are carefully reviewed each week when the entire department assembles for work in the forestry seminar.

FOREST CRAFT

Throughout the entire course the students are taught the ways of woodsmen, such as taking natural trail observations, observing game signs, orientation at night or on cloudy or smoky days, cooking, making and breaking camp, care of horses, and camp equipment, care of health, and means of protection against wild animals, insects, and fire; also methods of camping and sleeping in deep snow, first aid to injured, and simple remedies for colds and other ailments.

N. B.—Since the above was written the timber owners and lumbermen of northern Idaho have agreed to a plan to pro-rate their timber holdings in the State to the extent of $58,000.00 for the purpose of erecting a forestry building at the University of Idaho. It is the plan of the University authorities that the building and equipment will cost $100,000.00 and will be as complete as possible in every detail.

Mr. Emil P. Secker has been appointed commercial agent of the Department of Commerce and Labor to make investigations with respect to trade conditions in the lumber industry in foreign countries. Mr. Secker will make certain preliminary investigations in the United States, covering a period of about six weeks, with a view to securing information which will aid in his investigations abroad.

MEETING OF THE CANADIAN FORESTRY ASSOCIATION

By E. A. STERLING

THE Canadian Forestry Association held its thirteenth annual meeting in the Parliament Building, Ottawa, on Feb. 7 and 8. In point of attendance and enthusiasm, it was one of the most successful meetings ever held, and our Canadian friends have reason to be proud of the growth of the Association and of the interest which is being manifested in forestry matters throughout the Dominion.

The two days' meeting was characterized by the large number in attendance and by the comparatively small number of papers read, which, however, resulted in very interesting discussions from a large number of those present. The following papers were read: "A Progressive Forest Policy Requires an Investment of Capital," H. R. McMillan, M. F.; "The Attitude of Railroads Towards Forest Fires," by E. A. Sterling, F. E.; "The Aims and Objects of the Canadian Forestry Association," by E. Stewart, F. E.

Dr. B. E. Fernow's paper in regard to forest fires, and the report of his committee appointed by the Association to consider this question, were of particular interest. Lack of organization as regards forest fire protection pertains in the forests of Canada as it does in the United States, but all seemed agreed that with proper organization and co-operation between the various interests, the fire damage could be very materially reduced, if not entirely controlled. The lumbermen and forest officials of various provinces pointed out the difficulty of procuring good men in remote districts who could be depended upon for proper patrol and other precautions for the prevention of fires. Unfortunately, some of the appointments have been more or less political, and the result is that men entirely unfamiliar with the woods have attempted to serve as guardians of the forests.

The address given by Mr. Pinchot on the second day's meeting struck to the very heart of the question of Forest Service organization. Mr. Pinchot spoke frankly and clearly in regard to the difficulties which had been encountered in developing the Forest Service in the United States, and on the basis of his broad experience in building up such an organization, he was able to point out the essential factors on which an efficient service must depend. He emphasized the necessity of keeping free from all political entanglements, and favored the placing of heavy responsibility on comparatively young men. Another fundamental point which he made was the necessity of giving the field men a square deal, because under ordinary conditions, when they are given no opportunities to get in personal touch with the office, their recommendations are liable to be turned down without sufficient consideration. Trying to get the field men's point of view, and

the transfer of office men to the field and field men to the office, was recommended.

On the evening of February 7 the joint banquet of the Canadian Forestry Association and the Canadian Lumbermen's Association was held in the Parliamentary Restaurant, attended by about 200 members and friends of the two organizations. Among the prominent men in attendance were Premier Borden, Sir Wilfred Laurier, Hon. Sidney Fisher, Mr. H. M. Price, Mr. Gifford Pinchot, Hon. Geo. E. Foster, Mr. Alexander McLauren, President Lumbermen's Association; Mr. Wm. McNeil, a prominent lumberman of Vancouver; Dr. B. E. Fernow, Dean of the Forestry Department of the University of Toronto; Mr. R. H. Campbell, Superintendent of Forestry for the Dominion of Canada; Mr. Aubrey White, Deputy Minister of Lands and Forests, and Sir Frederick Borden. Mr. Geo. Y. Chown, President of the Forestry Association, acted as Chairman, and toasts were proposed to the King, to Parliament, to the Lumbermen, "Our Guests," the Forest Services, and the allied interests.

Among the Canadian members present there was a friendly exchange of persiflage on the recent political changes, but good fellowship and enthusiasm were the keynote of the convention. The earlier speakers, among whom were Hon. Mr. Fisher, Right Hon. Borden, and Sir Wilfred Laurier, paid high tribute to Mr. Pinchot as representing the highest conservation and forestry interests in the States. Mr. Pinchot, in replying to the toasts, "Our Guests," made a most excellent address on general conservation questions.

The officers elected by the Forestry Association for the ensuing year were: Honorary past president, Sir Wilfred Laurier; honorary president, Rt. Hon. R. L. Borden; patron, His Royal Highness the Governor-General; president, John Hendry, Vancouver; vice-president, Hon. W. A. Charlton, M. P., Toronto; territorial vice-presidents—Ontario, Hon. Mr. Hearst; Quebec, Hon. Jules Allard; New Brunswick, Hon. J. K. Fleming; Nova Scotia, Hon. George H. Murray; Prince Edward Island, Hon. J. A. Mathieson; Manitoba, Hon. R. P. Roblin; Saskatchewan, Hon. A. E. Brown; British Columbia, Hon. W. R. Ross; Yukon, Commissioner Black, McKenzie, F. D. Wilson; Keewatin, Lieutenant-Governor D. C. Cameron; Ungava, the Archbishop of Montreal.

Board of Directors—William Little, Hiram Robinson, Aubrey White, E. Stewart, H. M. Price, W. B. Snowball, Thomas Southworth, Hon. W. C. Edwards, Hon. Sydney Fisher, R. H. Campbell, J. B. Miller, G. C. Edwards, Dr. B. E. Fernow, Ellwood Wilson, F. C. Whitman, G. C. Piche, Aleck Maclaurin, Carl Riordon, Mgr. Matthieu, Bishop of Regina; A. P. Stevenson, William Pearce, William Power, C. E. E. Ussher, Denis Murphy, C. Jackson Booth, William Price, M. P., J. W. Harkom, A. S. Goodeve, M. P., Senator Bostock, W. C. T. Hall, J. S. Dennis.

Secretary, James Lawler.
Treasurer, Miss M. Robinson.
Assistant secretary, Mr. F. W. H. Jacombe.

SECURING STATE FOREST LANDS

By W. M. HAYS
Asst. Secy. Dept. of Agriculture

WE have been so busy with this national forest movement and with this Appalachian movement that we have not looked forward, and we have not thought that possibly we could have other quite as large movements or nearly as large movements in this same forest promotion. I have a suggestion along this line, which is, that by some means, the Federal Government and the State Government co-operate in the broadest way in securing lands that cannot be secured as Federal lands, but can be secured as State lands, and that the Federal Government, possibly by paying a part of the interest on the bonds, encourage the States themselves to purchase the lands. Broadly speaking, there are something like one billion nine million acres of forest in this country, of which less than a hundred and seventy million acres are under the Forest Service. That is something like nine per cent. There are somewhere from ten to twenty millions acres in the hands of the States; but our Forestry Service could not give me anything like a close estimate, because some of these lands have been purchased recently and some are on timber lands that are ceded as school lands.

If we could get some large area of fifty millions or a hundred millions of acres, which would be one-twentieth part of the whole forest area of the country, if we could get some large area purchased by the States, the Federal Government paying a part of the expense, say, half of the interest on the bonds for a given period of years, until the forest became productive so that the States would have an income from them, it might be wise on the part of the Federal Government to do that.

There are many reasons for that, one or two of which I will mention. For instance, suppose the State of Minnesota were to create the forest land; the profit would eventually go to Iowa and South Dakota, and North Dakota, as well as to Minnesota; and if they were grown somewhat at a loss, or as a public enterprise, these other States might properly help in paying the cost. So that if the encouragement of timber-growing is to the advantage of our cities as well as to the States, these cities might help in paying some of this first money, this investment, in some such form. Using the process you use now for those lands you are purchasing in the Forest Service, six dollars an acre, we will say, as an average, and three and a half per cent an acre, will mean only ten per cent or at most twenty per cent per acre that the State and Federal Government would pay. In terms of ordinary appropriation, that would mean about five millions of dollars, at the most, from the Federal Government. So that this is not out of proportion to the ordinary expenditure, and it will look to the taking up of a large area of forest land that there is now no way of taking up in a public way. It would take up a great deal of land that we cannot hope that private enterprise will take up, and will enable the growing of forest crops on that area.

PEOPLE HELPING THE FORESTERS*

By Chief Forester HENRY S. GRAVES

THE three big problems of the Forest Service are: Protection of the timber against fire; continuation of forests or reforestation, and development of the natural resources.

And the spirit with which the people are helping us solve these is really remarkable. Not only settlers in the National forests and owners of land adjoining are helping us put into practice our theories, but even the private owners of timber lands have realized that it is to their benefit to preserve the forests and to continue them.

In a few years the loss of timber by fire should be reduced to practically nothing. We have always estimated that $50,000,000 worth of timber was destroyed each year by fire. Last year, I should judge, it was $20,000,000 or less. We were fortunate in having only a few fires last year, but still they were big ones.

The co-operation of the people in helping us minimize the risk of fire accounts largely for the big reduction in loss. The Forestry Service is building new trails in the forests, putting up telephone lines, establishing lookouts and taking other precautionary measures. The owners of adjacent lands are following our example. In many places, particularly in the states of Washington, Oregon and Idaho, private owners are spending more money for protection than the Government.

Private owners are also adopting our plan of forest continuation. Not many years ago a forest had been cut down for its timber, the land was left an unprofitable and unproducing waste. Now owners are taking care that new timber will grow where the old stood. When we find it expedient to cut the timber in the national forests we carry out this plan of reforestation. If the scheme were generally adopted no one need fear that the timber supply of the country would ever be exhausted.

In order to encourage forest continuation, the States should see to it that the tax on growing timber is not too heavy. It requires forty years and over for a tree to become of merchantable size, and if the owners are forced to pay a big tax they will not find it worth their while to grow timber and will abandon the scheme.

It is easy to see the value of forest continuation. In the old days the industries and cities depending on the cutting of timber disappeared with the forests. Should the forests be kept growing the industries will live with them.

People have also realized by this time that our protective policy is one of development and we are not meeting with the opposition of a few years ago.

*Address at meeting of the National Forest Supervisors of California and Western Nevada

THE WORK OF THE ASSOCIATION

By HON. ROBT. P. BASS

President of the American Forestry Association

WE have entered upon a definite policy of public forestry development. We are still in the very primary stages in the application of forestry to privately owned timber lands. We are in the middle stage of development in regard to the practice of forestry by the various State governments. We are undoubtedly in a critical position in regard to the timber supply in this country. Our use of timber per capita in the United States is greater than in any other civilized country in the world. Our natural resources in that respect are rapidly becoming depleted. Fortunately, we have gradually appreciated the conditions which are to confront us in the future, and if we are to develop an economically sound basis as between the supply and demand of forest products, we must develop the science of forestry to the highest degree attainable. In this, it seems to me that the American Forestry Association can be of the greatest use.

The best development of the science of forestry can only come through the co-operation of all the forces which can be brought to bear to develop that science, namely, the Federal Government, the various State and local governments—that is, the town and county governments, according to conditions in the different communities—and the private owners of timber lands. To bring these various forces together into one co-operative unit is, to my mind, the next fundamental step in the development of forestry in this country, and in that work it seems to me that the American Forestry Association can play a very important part. In order to do this, it needs to extend its scope to reach all parts of the country, to serve as an educational medium through which not only the few interested in forestry, but all those who have any relation to the lumbering interests, and to all the interests which are involved in the produce of our woodlands may be reached and taught how they may best make use of the resources at their hand.

The American Forestry Association has before it, to my mind, a great work, and it is the earnest desire of the men now active in the management of the association to seek the co-operation of as many public-spirited men throughout the country as they can reach in this work. They believe it is a work which will be of real benefit to an enormous number of people in this country, and they want the help of all men who can spread the doctrines for which they stand in carrying out the ideas of scientific and of practical forestry.

WYMAN'S SCHOOL OF THE WOODS

By THOS. B. WYMAN

TO train young men in forestry, as it is actually practiced; lumbering, as done by successful operators; milling, of hardwoods and softwoods, and the woodcraft necessary to properly accomplish forest work, Wyman's School of the Woods was organized at Munising, Michigan, July 1st, 1909. Munising is on the south shore of Lake Superior about midway, east and west, of the upper peninsula, and is recognized as having more contributing timber resources than any city in the State of Michigan.

Large corporations have undertaken reforestation and arrangements have been made to employ the students in this work and in the nursery work auxiliary to it.

Organized forest protection is carried on in these forests as is also cruising and estimating, woods, surveying, mapping, scaling, compass work, camping, etc., in all of which students are drilled by force of requirements.

The only endowment of the school is this huge forest; an endowment of such worth that it can not be over estimated in its influence upon forest education.

In addition, the school maintains comfortable quarters at Munising for the theoretical lecture work, draughting, mapping, etc.

A library of several hundred technical and practical works, a reading table to which come the scientific magazines, trade papers and out-of-door periodicals, and fully equipped lecture rooms and draughting rooms offer opportunities for study and practice. All of the best instruments used in forest work are owned and used by the school.

The great lecture room, the great laboratory, the great library, the great store-house of forest knowledge, is the forest; and in it the students spend every moment possible, for new points are always arising which can best be explained by practical demonstration.

The courses at Wyman's School of the Woods are broad in gauge and are designed to cover the full field of forestry in twenty-four months of actual attendance. Upon satisfactorily completing both the theoretical and practical work students are granted a certificate of efficiency in logging engineering. The course is designed in such a manner that students who are unable to take more than a single year of study should be qualified for positions as rangers, compassmen, etc., at salaries commensurate with the duties and responsibilities of the position.

The full courses are open to graduates of approved high schools and others of business training whose qualifications are satisfactory to the directorate. All subjects are arranged in sequence and as closely to season as possible. Hence, students are allowed to enter at the beginning of any subject.

A summer course, covering ten weeks, is also offered. This course is to offer to those students who are "thinking of forestry" an opportunity to learn, by contact with the forest, the nature of advanced study and of actual work. No special qualifications are required for entry to this course. It is purely an out-of-door training school and the entire time is spent in camp.

THE APPALACHIAN WORK

By WM. L. HALL
Of the Forest Service

THE Forest Service is now practically getting into the routine part of the Appalachian work, and I think this year's appropriation will run over one million dollars. If it should turn out that purchases are to be made in the White Mountain region the Forest Service itself would be in a position to report upon the land. It has examined it to the extent of a hundred thousand acres or so, at a valuation of perhaps from six to eight hundred thousand dollars.

Should it turn out that we cannot purchase lands in the White Mountains this year, then we expect that we will complete examinations in the Southern Appalachians, enough to consume the appropriation of two million dollars which is available for this present year; so that, in any case, we believe it will be possible to use the money which Congress has put into our hands.

When this proposition was under consideration for the ten or twelve years it was before Congress, it was pointed out by those who thought it was unwise that, if this law were passed, we would encounter all kinds of difficulties. It was said, in fact, that it was a scheme of the land grabber; it was a scheme of the speculator, and that when we actually got into the work of acquiring land we would find that the speculator had gone in advance of us and had gathered in the lands, and would turn them over to the Government only at a great profit. We have not found that to be true. In a few cases locally, we have found that men have gathered in considerable bodies of land, expecting, possibly, that the Government would come in as a purchaser eventually.

That has not been hard to deal with. Generally, we have found the land owners have not discounted the action of the Government at all, and are ready to deal with us on a frank and businesslike basis.

The passage of this law, however, did in a measure set acting a certain class of men, men who were very anxious to become closely acquainted with the $11,000,000, and they have attempted to operate in various ways. Some of them have attempted to impersonate Government officials in filing their options on land; others have attempted to get options in their own names with the idea, of course, of making a good profit; others are endeavoring to show that, as agents, they can save the Government a great deal of money, and also obtain enormous prices for the owners of the land. But, with a stiff backbone against all that sort of thing, we are able to make progress, and we shall undoubtedly be able to make progress, and carry out effectively the law as it was the intention that it should be carried out, and as it was the expectation of the entire country that it should be carried out in a reasonable and businesslike way, doing justice alike to the land-owners who have land to sell and to the whole people whose money was to be used for the purchase of those lands, and only at a reasonable price.

CONSERVATION THROUGH LEGISLATION

By MRS. DE B. RANDOLPH KEIM.

IN conformity with the promise of his annual message to Congress, the President of the United States, in a more elaborate consideration of the conservation of our national resources in a special communication to that body, stated the issue and the argument in furtherance of this great national movement in support of the best interests of the present and safe-guarding of the necessities of the future. As a basis of argument and interest in advocacy of the conservation movement it may be said the public domain today amounts to 731,354,352 acres, about 70 per cent of the area of fifty years ago, and represents largely mountain ranges and arid or semi-arid plains, the most desirable area having been absorbed. In behalf of the sons of America desiring to go West and establish themselves and children, were passed the homestead and other praise-worthy acts. The lax methods of distribution and the impression by many that the public domain was legitimate prey for the unscrupulous led to the passage of large areas of valuable land and many of our national resources into the hands of persons who felt little or no responsibility for promoting the national welfare through their development. The title to millions of acres of public lands thus went into private hands to the detriment of the interests of actual settlers. The right to recover most of such selfishly if not fraudulently obtained lands has unfortunately ceased by reason of statutes of limitations.

The public lands in former times were regarded as a national asset, to be utilized for the payment of the public debt and as a reward for the soldiers and sailors. Apparently overlooking these purposes immense areas were given away in promotion of schemes of wagon and railroads. As their uses were designed to open the great West to accessibility and settlement they had a reason, but the reckless manner of the bestowal made the well intended project an expensive method of reaching a desirable end. Since the best part of the arable public domain has thus vanished present efforts are directed toward the conservation of the resources of what remains and the prevention of further spoliation.

The object now in view is the maintenance and extension of the forest resources and the enactment of laws amending absolete statutes so as to retain governmental control over that part of the public domain in which there are valuable deposits of coal, oil, phosphates, etc., and to preserve and control under conditions favorable to the public of lands and water power sites along the streams in which the fall of water can be made to generate power to be transmitted in the form of electricity many miles to the point of its use. In concert with the policy of the national administration the efforts of associations of the people have contributed an important share of effective service by awakening public attention and arousing popular co-operation and

effort. The investigation of violations of the public land laws and prosecution of land frauds have gone far toward calling a halt upon the reckless procedure in the past. The withdrawal of coal lands for proper classification and valuation and the withholding of power sites for the time being opens the way to effective action and results. Within the past year the withdrawal of power sites has been applied to one hundred and two streams or two hundred and twenty-nine per cent more than were covered by previous withdrawals.

The statutes relating to the disposition of the precious metals and lands strictly agricultural are accepted as well adapted to the purpose, but are not suited to existing best public opinion as to the disposition of public lands to private ownership and to prevent monopoly or improper use of these lands or their products. One of the chief causes of the reckless disposition of the public domain in the past has been the lack of classification according to value or use. The U. S. Geological Survey, which has long been in the official contact with the public domain from a scientific and economic viewpoint, after years of exploration, investigation, survey and mapping by expert employees in these respective branches without going further possesses a vast quantity of collected and digested material and applied information. It has the equipment office and field to enable it to promptly extend its operations along up to date lines of public opinion and interest in the conservation of our natural resources. The disposition of agricultural lands as such reserving for different ownership or regulation the coal, oil, asphaltum, natural gas, phosphate or any other non-precious metallic substances is the motive of public policy now proposed. The separation of the title to the surface and the title to mining privileges beneath with the right to use so much of the surface as may be required to operate the subterranean mineral deposits presents a proposition which, it is thought, will compass the exigency of the new situation. To accomplish this and it is proposed in the future to utilize the land laws as they stand for the disposition of agricultural lands and the coal, iron or other minerals beneath to be disposed of by lease or royalty and requiring a fixed amount of development each year with special provisions to prevent monopoly. A duplex system of this character applied to the public lands possessing much novelty may be reached by laws at first experimental and subject to improvement as practical working suggests. The adoption of a system appliable to the valuable water power sites in all the public land states presents difficulties arising out of local sovereignity as affected by territorial governments becoming states. As the power in streams passing through public lands can only be made available by using the lands adjacent for the construction of plants for the generation of power and right of way for the transmission of lines, legislation should be asked imposing such conditions in the disposition of lands so situated as may be necessary both in the creation and utilization of the power. It will be seen the question of conservation of our naural resources as a sentiment or abstract proposition and as an aggressive policy supported by the people along practical lines presents opposite conditions. To accomplish the latter interchange of views and associated effort will prepare the way to the accomplishment of definite results, which can be attained through national legislation.

PRIVATE FOREST OWNERS

By A. D. HOPKINS

Of the Bureau of Entomology

I BELIEVE that the American Forestry Association is capable of rendering great service to the cause of forest conservation in this country. I believe that the people of the country who are directly interested in the forest resources have had enough information on the need and importance of conservation. They have been sufficiently warned of the dire consequences of forest destruction, inundation and erosion. Indeed, there has been too much agitation and activity in the interests of certain restricted federal and State forest legislation, and not enough in the interest of the private owner, who is willing to be converted to the natural ideas, if he could be made to see that they would contribute to the wealth of his county or his State, and, at the same time, pay him.

The private owners want the facts about the best methods to protect and increase and utilize forest crops. In other words, they want to know what to do and how to do it, and if it will pay. These are the people who are in need of information and instruction on the essential facts and principles of successful forest management. The officials of public forests are supposed to know all of those and to be competent to select and carry out the proper conservation policy for the forests in their charge.

Therefore, they are not so much in need of the association, but think that all others who are working on the scientific and practical problems of forest protection or forest management, with a view of demonstrating to the private owners the improved methods which would be to their advantage, should have the association back of them. The products of the privately owned forest are relatively as important to the people of the country as are the products of the privately owned farms, and, therefore, the owner of a forest deserves the same help as that so liberally extended to the owner of the farm.

A large part of the appropriation for forest insect work in the Bureau of Entomology at present is being directed to demonstration of methods of control and to practical instructions by practical men in the field for the direct benefit of groups of private owners in different sections of the country. By dint of very hard work we have met with some success; with the moral backing of an association such as the American Forestry Association, our task would be greatly simplified.

AN APPROVAL

By Hon. ADOLPH O. EBERHART
Governor of Minnesota

Editor of American Forestry.

REPLYING to your letter of January 17th, containing a copy of resolutions adopted by the annual meeting of the American Forestry Association and asking for an expression of an opinion from me regarding them, I beg to say that the federal appropriation to which resolution number one refers has resulted in great good to this State. We received $10,000 last year under a co-operative arrangement, and this amount has enabled the State Forestry Service to do far more than the amount itself would indicate, as it has made possible a larger field force throughout the fire season. The great success of our Forestry Department in controlling fires last year was due in no small measure to this assistance.

With reference to resolution number two, no doubt Minnesota has suffered greatly through an unfortunate situation of taxation of forest lands. In my opinion the custom of taxing growing or standing timber repeatedly is unnecessary, as well as unfair. The state, as a whole, would derive the same revenue through taxing the product after the timber is cut and by so doing would insure permanence of the timber industry. As it is now, the owner of standing timber finds it expedient because of the taxes to cut his timber as soon as possible, and in the cheapest possible manner, thus resulting in waste. The right way to tax forest property is to tax the land itself annually in accordance with its real value. The crop should be taxed but once, and that when cut.

As to resolution number three, while it is undoubtedly important in localities where it applies, it does not particularly affect this State.

As to resolutions four and five, both these subjects are thoroughly covered by the operation of our reorganized Forestry Department, which is encouraging the co-operation of timber owners, and is also carrying on an educational campaign to bring about successful reforestation.

THE 1911 INDEX

The 1911 index for American Forestry is now ready and subscribers may have it mailed to them by writing for it.

Wireless telegraphy will become a factor in the prevention of forest fires in Montana, if experiments planned by R. P. McLaughlin, forest supervisor, are successful. It is proposed to establish a station and open communication with the wireless plant at the Kalispell High School. If the experiment is successful several stations to be operated in connection with the telephone system already in operation, will be organized.

STATE NEWS

Pennsylvania

Pennsylvania's methods in fighting the San Jose scale, the codling moth and other enemies of fruit trees, have attracted the attention of two of the Southern states in which commercial orchards are being developed. The system adopted has been imitated in others, but now word has been received that men are coming here to see how trees are handled.

An incorporated concern which is working under the direction of Virginia's State Bureau of Economic Zoölogy, has asked State Zoölogist Surface if he can provide demonstrations for men who have been detailed to come to Pennsylvania to observe.

Dr. W. E. Hinds, State Entomologist of Alabama, has written to Dr. Surface asking for an outline of his division's work and for instructions such as are given to the orchard workers.

The Maryland State authorities have also highly commended the Pennsylvania system. This State held twenty-six demonstrations for the killing of scale and moth last year along the same lines as the 900 that are held in this State.

New York

A public hearing was held by the Forest, Fish and Game Committees of the Senate and Assembly on the bill to amend the Conservation Law relating to Lands and Forests, February 20 and 21. The greatest public interest has been manifested in the reforestation policy of Governor Dix and the Conservation Commission, since it promises to restore the forest areas of the state to an extent required by the industrial, commercial, sanitary and recreation needs of a rapidly increasing population. The people are astounded to learn that there are about 2,300,000 acres, eight per cent of the State's total area, which now have no profitable growth. All this is virtually idle soil and should be planted to forest, for which it is best adapted.

The Conservation Commission's bill, now before the Legislature, seeks not only to enlarge the state's authority with reference to the reforestation of public lands, but also aims to encourage tree planting by private land owners.

There are several important changes in the forestry law proposed by this bill, but the two most progressive features undoubtedly are those relating to the regulation of timber cutting on certain private lands, and to afford taxation relief to the owner who reforests denuded or idle soil.

North Carolina

Through the efforts of the North Carolina Forestry Association, which was organized last February with the specific object of "promoting the protection of the forests of North Carolina from fire and from destructive insects, and of promoting their perpetuation by wise use and by the reforestation of cutover and abandoned lands," two county associations were organized last fall to take up and encourage the work of control of the southern pine beetle, which has latterly become so alarmingly prevalent through the South Atlantic states.

With the assistance of The Greater Charlotte Club, a meeting was held in Charlotte on November 24, at which Messrs. E. B. Mason and F. B. Snyder, of the U. S. Division of Forest Insect Investigations; Mr. J. S. Holmes, State Forester and Secretary of the North Carolina Forestry Association; Mr. W. S. Lee, a Vice President of this Association; and several other local men made addresses. The result was the organization of the Mecklenburg Pine Beetle Association, to assist the farmers and other timberland owners in carrying out the methods of control recommended by the U. S. Bureau of Entomology. The following men were elected officers: Messrs. W. S. Pharr, president; Summers Alexander, first vice president; W. S. Abernethy, second vice president; and Rufus M. Johnston, secretary and treasurer.

It was suggested at this meeting that Mr. E. T. Clark, county demonstrator for the U. S. Department of Agriculture, be secured to mark the trees for cutting at the various places through the county where control operations were to be carried out. Subsequent negotiations have resulted in the permission of the Department for Mr. Clark to do this work.

Two weeks later a similar meeting was held in the adioining county of Gaston, at which the two above-named entomologists, Messrs. Mason and Snyder, and also the State Forester, were present. The meeting organized itself into The Gaston Forestry Association, the chief object of which was stated to be the control of the southern pine beetle as advvocated by the U. S. Bureau of Entomology. Its secondary, though more permanent object, is to support all forestry movements of local interest and value and to cooperate in every possible way with the State Forestry Association. Mr. A. C. Stroup a vice president of the North Carolina Forestry Association was chairman of the meeting and was elected secretary of the county association. The other officers were: W. W. Farries president; R. N. Johnson, first vice president; and J. F. McCarver, second vice president.

New Jersey

The United States Department of Agriculture has notified the New Jersey State For-

est Commission that an allotment of $2,000 will be made to New Jersey to aid in the work of controlling forest fires during the present year. Last year the State received $1,000 from the appropriation, which was expended in establishing a fire patrol in the northern part of the state.

California

According to the statements of J. A. Boyle, special investigator of the State Forestry Office, at Santa Barbara, Cal., two investigators are working in the northern part of California making an extensive investigation of the system of taxing timber lands. The investigation is an exhaustive one and will cover all the timber lands in California. It is being made at the request of the National Conservation Commission at Washington, D. C. It is understood that after the investigation in California has been completed, the work will assume a national scope. On account of the vast timber holdings in the northern part of the state, the work is of great importance and will be carried on in a searching and thorough manner.

Forest rangers of the Redlands (California) section have begun planting 15,000 eucalyptus trees on the foothills of the mountains, north of Del Rosa and West Highlands. It is the first eucalyptus planting in the local mountains, but it is expected many more trees will be planted in the foothills in the next few years.

West Virginia

West Virginia forests are said by experts to be remarkable for their extent, their variety, and the number of species of trees. Certainly it is stated that in no other forest area in America can a greater variety in species and size be found. The early settlers of the state, careless of the future, decimated the soft woods in the erection of their homes and in making their "clearings." But the hardwood, better than the soft woods survived the ordeal, and their seedlings are today ready for the ax and the saw. The first movement for the systematic and effective conservation of West Virginia's forests was begun twenty-five years ago. Today the state's timber is of enormous value and the buyers from all the world's markets are constantly in the field in an effort to secure it against future consumption.

Michigan

Upper Michigan pine forests are fast becoming a memory, as the lumbermen are contenting themselves with hardwood and hemlock, where in years gone by they would disdain to cut anything but the stately white pine.

The last big tract of pine in Luce county—big as such tracts are nowadays—is being cut this winter by F. Chesbrough and is being banked on the Taquamenon River. It consists of 3,000,000 feet of the finest cork pine. The timber is so located that logging operations are difficult. It is a 12-mile haul from the camps north of Newberry to the river.

At the big union meeting of teachers and grangers at Hesperia, Mich., in February, Prof. Filibert Roth, of the Forestry Department of the University of Michigan, advocated the establishment of a state bureau of forestry. At the present rate of cutting timber, he said, the state would be stripped of this resource in a short time and a bureau of forestry would tend to educate citizens to plant trees before the state's forests are all gone.

Florida

P. T. Day, of Cleveland, O., the largest naval stores operator in the West, predicted in Savannah, Ga., recently that if the present profligate destruction of trees in Florida is continued that state will be totally denuded of pines in a few years. He said the matter had been brought to the attention of the Department of Agriculture and that the government officials had concurred in his prediction.

Wisconsin

State Forester E. M. Griffith of Wisconsin, returning from a visit to Washington, D. C., says that there is a favorable outlook for the passage of Congressman E. A. Morse's bill to add to the state forest reserves 216 islands in the forest reserve area in Vilas and Oneida counties of Wisconsin. A letter from Congressman Morse gives further encouragement for the success of the measure. The islands contain 167 acres and the state desires to add them to the reserves for their conservation.

Under the terms of the bill, they would be used only for forest reserve purposes if given to the state.

Mr. Griffith secured from the forestry service at Washington an extension of its contract with the Wisconsin Forestry Board for supplying a federal forest patrol to work with the state guardians, the contract involving $5,000 annually.

Minnesota

To arrange for co-operation between the railroads and the State Forestry Service during the dangerous fire season of 1912, State Forester Cox called a meeting of railroad officials and forest rangers at Brainerd to outline a plan for fire prevention and protection. Although two months or more probably will elapse before the season for forest fires begins, Mr. Cox proposes having arrangements completed for protecting Northern Minnesota when that time arrives. During the dangerous season there will be fifteen rangers and nearly two hundred patrolmen on the lookout to prevent damage by forest fires.

New Hampshire

A systematic campaign against the gypsy moth in New Hampshire has been started by

the state moth department. It is the intention of the state agent to bring every resource to bear against the pest so far as an econmical administration of state funds will allow.

It is especially the desire of the moth department to conduct the work for the benefit of the state as a whole, rather than for any one locality, and to make the state funds do the greatest possible service both for the present and for the future. With this in mind, the "scouting" or inspection part of the work has been organized.

Washington

State Treasurer J. G. Lewis, of Washington, has segregated the $24,111.46 which was the state's share of all receipts from the sale of property, rentals, etc., in the forest reserves in Washington for the year ending June 30, 1911, and the amounts will be distributed among the various counties according to the area of national forests they contain, as compared with the extra area in the state.

Colorado

Failure to secure the appropriation made by the last legislature to provide a horticultural and forest school on the Teller Indian School property may yet lose Colorado the buildings and the grounds valued at $450,000. President C. A. Lory, of the State Agricultural Board, has written to the local board in charge of the property, advising them of the alleged seriousness of the condition. The property was granted to Colorado by Congress on condition that it be converted into an educational institution to which Indians were to be admitted on equal terms with whites. So far the state has for lack of funds been unable to comply with conditions imposed by the act of Congress, but President Lory believes if the extension work can be carried out as planned, with the $5,000 promised by the state auditor, the state can retain possession of the property.

Tennessee

Problems arising from the destruction of southern forests by insect pests and fires will be discussed at a forest conference in Nashville, Tenn., April 8-10, at which Henry S. Graves, chief of the Forest Service, will preside.

This conference will be held as a part of the Southern Commercial Congress, which then will be in session. Lumbermen, manufacturers and southern legislators will be invited to participate in the discussions in which legal and other measures of forest perpetuation will be considered.

Montana

More adequate laws for the protection of the forests of Montana are needed, and unless the next legislature is prevailed upon to pass stringent fire laws the future of the forests will be in a most precarious condition, is the opinion expressed by State Forester Charles W. Jungberg in his annual report. He asserts that this protective legislation was not passed last winter because "pressure was brought to bear by interests that hold the main part of the timber outside of the national forests, to defeat all forest legislation."

Kentucky

Advocates of the awakening of interest in forestry in Kentucky have put before the Legislature aproposal that there shall be created a non-salaried commission of five members with the Governor a member of the commission; that there shall be a trained forester whose duty shall be to enlist the interest of private owners of land, to organize a fire warden system, and to develop a forestry policy for the state. It is further proposed that adequate fire protection provisions be enacted, and that the State be authorized to own land for experimental purposes and to reforest denuded watersheds at the sources of important streams.

Indiana

Optimistic reports concerning the good work of the Indiana Forestry Association were made at a recent meeting of the directors of that organization at the office of Charles W. Fairbanks. Mr. Fairbanks was re-elected president, and other officers were re-elected as follows: Vice-president, Mason B. Thomas, Wabash College, Crawfordsville, and secretary, George B. Lockwood, Marion. William A. Guthrie, of Indianapolis, was elected treasurer to succeed Hugh J. McGowan, who died.

In his report, Mr. Fairbanks said the work of the Association had been carried on with gratifying results since its organization. The people generally had manifested interest in the movement, he said, and prospects were very bright. Mr. Fairbanks said the newspapers of the State had done important work in educating the people concerning the purposes of the Association.

Oregon

The Portland, Oregon, office of the Forest Service has recently inaugurated a study of the production and consumption of pulp and pulp products in the Pacific Northwest. This study is now being actively pursued by three representatives of that Government Bureau. All of the pulp mills actively operating are furnishing data regarding their cutting, and information regarding the consumption of paper and other pulp products is being solicited from distributers and consumers.

Ohio

The Forestry Department of the Ohio State agricultural station is hoping its recommendations for legislation requiring the re-

forestation of Ohio woodlands will bear fruit in the present constitutional convention. One proposal introduced by Delegate Miller makes it mandatory for the legislature to protect insectivorous birds and such animals as destroy natural enemies of agriculture and trees. He also would require the legislature to encourage reforestation and make sufficient appropriations for agricultural education. Without waiting for the convention or legislature to act, however, Director C. E. Thorne, of the station, is out co-operating with owners of woodlots to reclaim them for reforestation. The Forestry Department offers aid to any such persons applying for it. "Investigations in thirty Ohio counties," says Thorne, "show that only 15 per cent of woodlots are reserved from pasturage."

Massachusetts

State Forester Rane, of Masachusetts, is sending his warning to the owners of woodland in the western part of the State, that they beware of the chestnut tree blight which is making its way eastward from New York and Pennsylvania, where thousands of acres of valuable timber have been destroyed by this new pest.

The advance guard of the pest has already made its appearance in the Berkshires. It is believed that with the advent of warm weather it will sweep eastward and destroy every piece of standing chestnut in the State. A serious financial loss is thereby threatened, for the State Forester estimates the chestnut growth of Massachusetts at more than $7,000,000.

NEWS AND NOTES

Supervisors Meet

The district supervisors of the Forest Service in California and Western Nevada held a very successful annual convention in San Francisco, starting January 22, at which Chief Forester Henry S. Graves, as well as a number of lesser forestry officials, were present. Representatives of nearly fifty prominent lumber companies and large owners of timber lands attended one of the sessions and held a joint conference with the forest officers. As a result of this conference a number of the leading lumber men and timber owners agreed to take immediate action toward the formation of an association similar to the Western Forestry and Conservation Association. They also organized to aid in protecting the forests from fire, and will work with the Forest Service to this end. Addresses were delivered by Chief Forester Henry S. Graves, Coert DuBois, Assistant District Forester Headley, Supervisors Rogers, Redington, and Rider, F. C. Thompson, Assistant District Forester Woodbury, Swift Berry, J. A. Mitchell, William C. Hodge, Forest Assistant Shaw, John H. Hatten, L. A. Barrett, and a number of others.

District supervisors also held conventions at Portland, Oregon, and Denver, Colo., Chief Forester Graves attending the former.

Chinese Forestry Students

Bound for Germany, where for the next year they will study the science of forestry at an agricultural college, Mr. Arlu Liang, the son of Dr. Cheng Tung Liang Cheng, Chinese Ambassador to Berlin, and his cousin, Mr. Foo Tsu Liang, left this country a few days ago.

The young men each nineteen years old, have been three years in the United States, Mr. Arlu Liang studying at Worcester Academy and Mr. Foo Tsu Liang at the Massachusetts College of Agriculture. Both have given much of their attention to the study of forest conservation.

Mr. Arlu Liang said that he and his cousin were leaving on short notice, a cable message from his father having arrived telling him to start for Germany on the first steamship available. He said he and his cousin were to study forestry in one of the German agricultural schools, in accordance with a plan formulated by his father.

His father, he declared, was greatly interested in saving the forests of China, where little is thought of forest conservation and where thousands of feet of valuable timber are wasted every year. He declared that it was his father's intention to begin an active campaign for the preservation of Chinese forests as soon as political conditions are tranquil in the country.

Crater National Forest

The Crater National forest is the subject of an interesting treatise by Findley Burns, in a bulletin published by the United States Forestry Service. The topography of the region, the supply of water for power and for irrigation purposes, the "crop" of timber, grazing regulations and settlement are covered quite fully in the bulletin.

It is shown that the forest contains 10,197,000,000 board feet of merchantable timber and is capable of turning off an annual yield of 90,000,000 feet. The water supply which can be conserved in the forest is said to be sufficient to irrigate 240,000 acres in addition to developing large power projects. Practically the whole forest is timbered. The only treeless portions are a few alpine areas on the crests of the higher mountains, some lava beds, mountain meadows scattered here and there, and brush land, the result of fire. Of the entire forest, 70 per

cent is covered with merchantable timber, 20 per cent bears stands of unmerchantable timber, largely young growth, and 10 per cent is grass or brush land and barren areas.

Mr. Sterling's Change

Mr. E. A. Sterling, for some years in charge of the forestry work of the Pennsylvania Railroad, resigned on February 15 and opened offices as a consulting forest and timber engineer at 1331-2 Real Estate Trust Building, Philadelphia. Mr. Sterling is very well known all over the United States as one of its leading foresters thoroughly conversant with all branches of the work and he is expected to make a great success of his new work.

State Land Prices

Junius E. Beal, of the Public Domain Commission of Michigan, writes: "We have just made a step in advance at a meeting of our Public Domain Commission in putting a minimum price of $2.00 an acre on state lands to be sold. Heretofore a great deal of Michigan land has been sold at a dollar an acre. We will boost it again before long."

Serious Situation

A dispatch from Banning, Cal., says: "One lone ranger remains on duty in the great Angeles national forest north of Banning, and other rangers having been furloughed for the reason that the treasury of the Forest Service is many thousand dollars short of having enough money to pay running expenses.

"The situation in the national forests hereabout is regarded as extremely hazardous, as there are many square miles of fine forest literally at the mercy of fortune. Lack of rain has made the forest very dry and should a fire be started there is no telling when it could be vanquished. The unprotected watershed supplies many prosperous fruit colonies, including Banning, Beaumon, Redlands and the Bear valley water shed, which supplies the Riverside groves."

Want Fire Protection

Strongly urging Congress to preserve intact the $1,000,000 appropriation for forest fire fighting, the Western Pine Manufacturers' Association went on record at the annual meeting at Spokane, Wash., with a resolution that will be telegraphed to all Senators and and Congressmen of the western states.

The measure, as passed unanimously, recites the disastrous fires of 1910 in Idaho and Washington, tells of the death of 100 men on the fire lines and demands in the strongest terms that the appropriation be made to prevent a repetition of the disaster.

Some fifty manufacturers were on hand when President William Deary, of the Potlatch Company, called the association to order, and nearly $50,000,000 of capital invested in timber operations was represented.

Preventing Forest Fires

Seeking greater protection from fire in the forest preserves of New York State, the Conservation Commission introduced in the Legislature a bill making it a misdemeanor to start a campfire on or near forest lands without first clearing away the brush and leaves for at least ten feet on all sides; to start a fire on or near forest or brush land and leave it unquenched; or to throw or drop a lighted match, cigar or cigarette into any combustible material without immediately extinguishing it.

The Moth Pest Bogey

Writing of the situation in Massachusetts, Allen Chamberlin says: "Things are certainly looking up in the gypsy moth war. It is a joyful spectacle to see the State forester standing before a committee of the Legislature and asking for a reduced appropriation, and it is no less cheering to hear the Federal Government's entomologist saying that the imported parasites are actually beginning to give an account of themselves. This does not mean that the day has been saved, and that we can lay down our arms in the near future and let the 'bug' go hang, but it does indicate that the seven years of persistent effort and the expenditure of more than two million dollars of State money, together with fully as much more of municipal and private funds, has been to some purpose, and that the greatest danger has been passed."

After the Bark Borer

With the assistance of the Government Bureau of Entomology, Henry Ireland, United States Forest Supervisor from Sumpter, Oregon, is seeking a bug to catch a bug that is destroying the pine forests in the Blue Mountains and other Eastern Oregon districts. The insect which the supervisor is after is commonly called bark-borer. Although it appears in nearly all the forests of the state, it is kept down by natural checks in most localities and it is only in the pine forests of Eastern Oregon that it has become alarmingly destructive. Mr. Ireland said that in one district infested by the borers they had moved southward over a broad area for about 40 miles since 1907, destroying about 40 per cent of the yellow pine timber they attacked.

160,000 Acres Secured

Solicitor George P. McCabe, of the Department of Agriculture, has drawn up the purchase contracts for the 160,000 acres of land bargained for by the Government in the Southern Appalachian Mountains.

Within the next few months Uncle Sam will have a national forest comprising 160,-

000 acres of land, the Government officials and owners having agreed upon the price.

This is just a beginning of purchases to be made under the Weeks law in the Southern Appalachian and White Mountains. Two hundred thousand more acres are now being examined by forestry experts with a view of locating desirable lands for additional purchases.

The lands already purchased will cost the Government about $1,000,000, the amount provided for purchases the first year.

One Cent a Tree

It costs 1 cent to plant a tree in Canada, according to a report submitted to the International Dry Farming congress by Norman M. Ross, of Indian Head, Saskatchewan, and just published in the annual congress handbook.

Mr. Ross is chief of the tree-planting division of the Dominion forestry department. He states that the Dominion forest nursery station at Indian Head is annually distributing to settlers in western Canada, free of charge, more than 2,250,000 seedlings and cuttings and that, during the last 10 years, the tree-planting division has furnished, roughly, 18,500,000 trees and cuttings to 14,882 settlers, an average of 1,240 to each applicant.

Low Prices for Trees

Efficiency and increased production at the New York State nurseries will enable the Conservation Commission to offer trees especially adapted to reforesting lands in New York State, to private land owners this spring at greatly reduced rates.

These offers should appeal to land owners throughout the State which is so badly in need of reforesting. Careful investigations of the Commission show that there are 2,300,000 acres in the State which are not producing any valuable growth, practically all of which could be profitably used in growing trees.

Chinese Forestry

Large corporations even in China, where the neglect of forestry has been notorious, are now beginning to grow their own timber. Chinese railroads have put considerable tracts in young trees to furnish their lines with ties and trestle timbers. The growth of trees is slow, but it is also sure and the market for forest products continues to increase in proportion to the shrinkage of the supply simultaneously with the expansion of the demand. It is high time that individuals consider the question of growing their own trees.

Railway Ties

Statistics prepared by the Forestry Service of the United States show that of the 125,000,000 crossties bought by the railways last year almost 80 per cent were hewed ties. The sawed tie, while occasionally produced by mills built particularly for this purpose, is more generally a by-product of general lumber operations.

A Wise Action

A timber company which has purchased 250,000 acres of land in Western North Carolina will place the entire tract under the supervision of the United States Forestry Bureau. This is a departure from the methods usually employed by timber companies. It is significant of the advance of the conservation movement.

Another feature of the enterprise wil be the complete utilization of all the sawdust and other waste from the several mills that are to be operated.

The Philippine Forests

The most striking element of weath in the Philippine Islands is the forests. They cover an area of 50,000,000 acres and of that area 40,000,000 acres are untouched and waiting for the American capitalist. In other words, the forests of the Philippines would more than cover the entire New England states, New York and Pennsylvania. Much of the wood is of the most valuable kind. Owing to the remote position of the Pacific island possession and the difficulties and great cost of bringing the woods to this country little has been done, however.

A Laudable Effort

Forest Service men who are blinded or otherwise disabled and the dependants of men killed in fighting forest fires can expect no compensation from the government. To remedy this condition Senator Dixon (Rep., Mont.), is making a sturdy effort to have the Forest Service employes included in the law which awards compensation to victims of hazardous government employment. The law proposes amendments in behalf of employes of the Bureau of Mines and the Forest Service.

EDUCATIONAL

Prof. Roth at Cornell

Professor Filibert Roth has accepted an appointment as professor of forestry and head of the Forestry Department in the New York State College of Agriculture at Cornell University. He moves to Ithaca next summer. This makes the third professorial appointment in forestry at Cornell in about a year. Professor Walter Mulford and Assistant Professor John Bentley, Jr., who are already at Ithaca, will be with Mr. Roth, and the Department plans to give a thorough technical course to students wishing to make forestry their life work. The Department will also continue its plans for university extension work in forestry and the teaching of elementary forestry to general agricultural students and others at Cornell. Professor Roth has been for nine years at the head of the Forestry Department of the University of Michigan. Mr. Roth was at one time in charge of all the national forest reserves under the Land Office.

Each an Officer

The story of the club that was organized with an office for every member, was illustrated at the University of Missouri when the Forestry Society of the University of Missouri, composed of forestry students, was founded. The officers are: E. L. Anderson, Goodwater, president; Victor C. Follenius, St. Louis, vice-president; Murrell W. Talbott, Appleton City, secretary; James Pixlee, Cameron, treasurer. Next summer the students will take a two weeks' camping trip to the Ozarks and will "cruise" the timber lands owned by the University of Missouri, about 50,000 acres. Students will estimate the number of board feet, map roads to get the timber out, and make general observations and notes on the condition of Ozark forests, what varieties flourish best, and how the Ozark forests should be managed to get the maximum return and preserve the forests as valuable assets—conservation in the open.

Forestry for Children

Charles C. Deam, Secretary of the Indiana State Board of Forestry, has announced the annual prize competition, open to school children of the State, for essays bearing on forest subjects. The subject of the essays and the conditions imposed are such that it will be necessary for the children to visit and study woodlands. Prizes aggregating $40 are to be given. Four $10 prizes will be given; one to pupils of the seventh grade, one to pupils of the eighth grade, one to freshmen and sophomore high school pupils and one to junior and senior high school pupils. The subject of the essay is to be "Woodlot Conditions in the County in Which I Live and Suggestions for Their Improvement."

A Course in Forestry

One of the branches of practical work in which the Science Department of the Newtown (Mass.) High School has manifested much interest is the study of forestry, which is being carried on in connection with the botany department. The student learns the kind of soil best adapted for each plant or tree, the proper way to set out these trees, how to insure their successful growth through trimming, and the extermination of various insects and pests. Certain trees are set out and carefully watched by the pupils during their growth. The different kinds of pests which appear are examined and studied in the botanical laboratory. A large tract of land has been set aside by the City Forestry Department for the students to set out trees in and study their growth. Part of the land is to be for forestry and the remainder for a garden.

New Forestry Department

Temporary organization for a forestry club, which is to be the forerunner of a forestry department in the University of California, has been effected. The Board of Regents is to be shown by the interest in this branch that there is need of a school here. A fund has already been appropriated for a forestry professorship. C. S. Robinson has been elected temporary chairman. A committee of six to draft a constitution has been appointed as follows: J. T. Saunders (chairman), Professor Jepson, A. E. Wieslander, W. P. Smidt, William Powell and F. B. Herbert.

At Missouri University

The course of forestry at Missouri University has been so arranged that more than eight months will be spent in practical forest work. A permanent camp will be established in the Ozark Mountains on the university's 50,000 acres of wooded land. This field work is expected to place the Missouri forestry school in the highest rank of such schools. Technical study of the principles of forestry will be given at the university, but training of foresters in such subjects as timber estimating, tree planting, lumbering, forest surveying, logging, roads, trails, fire lines, and working plans, will be given in the woods.

Prof. S. F. Clark, of Williams College, reports that he is on the lookout for a suitable tract of forest land where the students may experiment in forestry.

Syracuse University will establish a State College of Forestry and has engaged Dr. Hugh P. Baker, for some years at Pennsylvania State College, as its head. Dr. Baker is a graduate of the Yale Forestry School and also took a degree at Munich. He is one of the most able foresters in the country and has scored a great success at Penn State.

In the Ranger course of the School of Forestry, Colorado College has achieved a distinct success. This course has attracted a large body of men from the National forests of Colorado and Wyoming. With six weeks of field work, including studies of the growth and development of forest trees and mapping and estimating timber, the course has been of the greatest practical value.

A Summer Course

In connection with the regular Summer Forest Camp, which is held in the Ozark Region, from June 15 to August 15, the Department of Forestry of the University of Missouri will conduct a Summer Forest School for lumbermen, woodsmen and timberland owners. Short courses will be given in silviculture and the care and protection of forests, in methods of timber estimating, log scaling, rough methods of woods surveying and in laying out logging roads and trails, in timber and topographic mapping and in methods of marking timber for cutting to secure reproduction and for improving the condition and growth of forests.

QUESTIONS AND ANSWERS

Many of our readers frequently desire to secure some expert advice regarding various features of forestry work, and do not know to whom to apply for the information.

The Editor has accordingly decided to establish this column in which he will be glad to publish such questions as may be sent to him, and give the answers, whenever the questions relate to any detail of the work which this Association is doing or such information as it can give.

The Editor requests that communications be written on one side of the paper only and if possible, be typewritten.

New York City

Editor, American Forestry:

I notice your having introduced into Congress a bill in reference to the chestnut tree blight. At a recent meeting of lumbermen in Cincinnati we were asked to gather some statistics regarding chestnut and oak lumber and I shall be pleased indeed to have you send me what information you have, more especially upon the subject of chestnut blight.

E. F. PERRY,
Secretary National Wholesale Lumber Dealers' Association.

Pamphlets and reports of various experts mailed to Mr. Perry.—*Editor.*

Westerville, Ohio

Editor, American Forestry:

I am especially anxious to get data relative to State reforestation, the cost of reforesting, proceeds arising therefrom, and any other matter that will be helpful.

MRS. MARY E. LEE.

Experts opinions on these questions mailed to Mrs. Lee.—*The Editor.*

San Antonio, Tex.

Editor, American Forestry:

We have under consideration from an investment point of view the purchase of large tracts of timber, and in this connection, of course, in the forefront there is the question of supply and demand. Could you give us any data to assist us in the matter and the special demand for mahogany and tropical timber.

THE CONSOLIDATED COMPANY.

Reports on trade supplies and the price lists of lumber at various points mailed to the Consolidated Company.—*The Editor.*

Denver, Colo.

Editor, American Forestry:

In the event that I should set out in my yard in Denver Douglas fir or yellow pine trees of 3 and 4 inches in diameter, in good soil, how long should it be before they would become large enough to be valuable shade trees, would it be within 15 to 20 years?

G. E. BARTLETT.

About fifteen years. Would advise Douglas fir as a shade tree.—*The Editor.*

New York City

Request by Mrs. George S. Smith, 301 West 67th Street, for information regarding the culture of the Persian (English) walnut tree.

This is now being answered by Mr. E. R. Lake, of the Bureau of Field Investigations in Pomology.

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JOE BEACH, FOREST RANGER, WITH A LIVE WOLF ON HIS SADDLE, TAKING IT INTO CAMP SO IT COULD BE PHOTOGRAPHED AFTER RECOVERING FROM ITS WOUNDS, BUT IT DIED.

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TWO COYOTES CAUGHT IN TWO TRAPS BURIED UNDER THE SNOW IN THE LEADVILLE NATIONAL FOREST, COLORADO.